

Air Conditioning & Refrigeration News

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ISSUED EVERY WEDNESDAY
\$4.00 PER YEAR**THE COLD CANVASS**

By B. T. Umor

**What This Country Needs
Today Is More
Air Conditioning**

Logan Lewis, Carrier vice president, in speaking recently on how air conditioning has brought results to the "man in the street" through its application in various industries to improve products and lower selling costs, stated:

"Today Vice President Marshall would find that air conditioning has made his dream of a good five cent cigar come true."

That gnashing sound you hear is coming from Washington, where politicians are wondering how they happened to overlook claiming this accomplishment as one of the New Deal's results.

**Brother Heath
Was Stopped**

Delos P. Heath, able president of the Detroit section of the American Society of Refrigerating Engineers, lectured that body recently on "Capillary Tubes." (His lecture appeared in the March 6 issue of the NEWS).

Announcement of the paper brought out a packed house. But there was no discussion, even when Mr. Heath singled out several engineers he knew were experts on the subject.

"I have nothing to offer at this time," was the standing rejoinder.

Obviously capillary tubes are "red hot" right now in the various manufacturers' laboratories. Everyone was out to learn what the other fellow knew without revealing anything himself.

Mr. Heath saved the situation, however, by recalling the time he had been conducting a service school for a bunch of young engineers sent to the factory by distributors.

The lesson on capillary tubes seemed to stump one southern boy. However, he returned to class the next day all bright and shining.

"I've got them caterpillar tubes all figured out," said he.

**It's a Good Field, But
Pretty Well Developed**

Often it seems that people who should know better are our most gullible citizens. Comes a story from Dallas, Tex., about two attorneys who were "taken in" by a story of a wonderful new refrigeration invention that would immediately make all refrigerators on the market obsolete.

Posing as an impoverished genius who had devised a refrigerator that would accomplish unheard-of results, the "inventor" visited two lawyers ostensibly in quest of legal advice. (Concluded on Page 2, Column 4)

Coming Next Week—**1940 Household Refrigerator Specifications****—All Models, All Makes**

The Annual Specifications Supplement to AIR CONDITIONING & REFRIGERATION NEWS will be published next week, March 27, 1940.

Data on all 1940 models of U. S. manufacturers, including the official data on Nema makes compiled and copyrighted by the Refrigeration Division of National Electrical Manufacturers Association, and data on other makes secured directly by AIR CONDITIONING & REFRIGERATION NEWS.

Extra copies of this issue will be available at 20 cents per copy, three copies for 50 cents. Send remittance with order.

**Navy Wants Only
Reservists Who
Can Be Spared**

By James McCallum Jr.

DETROIT—Refrigeration needs of the U. S. Navy were discussed last week by Commander P. K. Fischler and Lt. Commander E. I. McQuestin, both active Navy officers, at the regular monthly meeting of the Detroit section of the American Society of Refrigerating Engineers.

The meeting was held at the Naval Armory. Prior to the technical session, dinner was served in the mess room of the Naval Officers' Club. The meeting itself was held in one of the Armory's small drill halls.

Commander Fischler opened the meeting with a brief discussion of the membership qualifications of the naval reserve, explaining that there had been some inquiries from A.S.R.E. members about forming a reserve unit of refrigerating engineers. He then outlined a few of the problems of naval refrigeration.

As to the naval reserve requirements, Commander Fischler explained that applicants were accepted only on the basis of their individual qualifications, and that therefore any refrigeration engineers' unit, as such, was out of the question. He made it clear, though, that it was entirely possible that many members of the A.S.R.E. might qualify individually for naval reserve membership, thus giving the Navy the benefit of their training and experience.

One of the primary requirements for reserve membership, however, is that a man must be able to leave his job immediately upon call to service. Unless a man can obtain a signed statement to this effect he will not be accepted. So-called "key men" in industry are not wanted, for it is felt that they can be of more service to the country in the positions which they hold.

Lt. Commander McQuestin, who (Concluded on Page 20, Column 1)

**Wallace Will Manage
Crosley Radio Division**

CINCINNATI—William T. Wallace has been appointed manager of the radio division of Crosley Corp. He comes to Crosley from Sears, Roebuck & Co.

Mr. Wallace's experience in the radio business dates back to 1926, starting with the production of radio receivers, and includes work in the drafting, designing, and engineering departments of radio manufacturers.

In the merchandising of radios, he has had experience as a retail salesman, as a distributor's representative, and as a manufacturer's district manager. His sales work has covered every state in the union and all major marketing centers.

With Crosley, Mr. Wallace will direct the merchandising activities of the radio division, and cooperate with distributors in developing their radio sales.

**Sears Tries New
'Compare' Copy
To Fight Prices****Chart To 'End Mystery'
Does Not Identify
Compared Makes**

CHICAGO — In an advertising drive evidently designed to divert attention from the lower prices now being offered on other leading makes of electric refrigerators, Sears, Roebuck last week broke newspaper advertisements featuring a "comparison chart."

Headlines in the advertisement declared that "Sears Takes the Mystery Out of Comparison Advertising," but there is mystery in the chart itself—for the four other refrigerators compared with the Sears' "Gold Seal" (\$129.50) model are identified only as "Make No. 1," "Make No. 2," etc.

Readers are invited to "compare Coldspots" against "refrigerators selling for \$40 more." The comparison is in chart form.

On the cabinet the points of comparison are: size—shelf area—number of shelves—cabinet construction—insulation (type and thickness)—interior finish—exterior finish.

On the unit the points of comparison are: type of unit (rotary or "piston")—forced draft cooling.

On features the points of comparison are: number of ice cubes—pounds ice—number of ice cube trays—number of speedex trays—number of frozen dessert trays—fingertip tray releases—interior light—sliding shelf—sliding vegetable freshener—water bottle—bin—defrosting meat storage tray (glass or porcelain)—thermometer.

**Glass-Door 'Humichest'
Added To 1940 Deluxe
Westinghouse Models**

MANSFIELD, Ohio—The Humichest, designed to keep high-moisture content foods better by providing controlled humidity as well as proper temperatures, is announced by the Westinghouse merchandising division as a feature of two of its deluxe models.

With the new development, it is claimed, foods keep fresher and longer, retain their natural juices and flavor, and actually improve in appearance.

High humidity in the Humichest, a self-enclosed compartment inside the refrigerator, remains constant regardless of the opening of the refrigerator door, it is claimed. The humidity may be kept at from 45 to 90% by means of two adjustable vents in the back of the Humichest.

The compartment has a transparent glass door with a rigid aluminum frame. Any excess moisture drains through small holes in the bottom of the Humichest, and is then picked up by air circulating around the compartment and is deposited on the evaporator as frost. The compartment may be easily removed and cleaned.

The Humichest is incorporated into two new Westinghouse refrigerator models, the Deluxe D-8-40 and D-6-40. In the former, an 8-cu. ft. refrigerator, the Humichest has a wire (Concluded on Page 2, Column 3)

**Fedders Nets \$227,012
In Last Fiscal Year**

BUFFALO—Net income of Fedders Mfg. Co. for its last fiscal year was \$226,012, equal to \$1.16 per share, according to a report made here last week. This compares with a profit of \$14,738 or six cents a share made in the previous year.

Heads Hotpoint

A. D. BYLER

Newly elected president of Edison General Electric Appliance Co.

**New Peerless Store
Unit Complete But
For Condensing Unit**

CHICAGO — Self-contained store cooling units in 3-ton and 5-ton capacities, which will be sold without compressors and compressor motors, have recently been announced by Peerless of America, Inc., here.

By this method, the sales organization marketing the unit can install any compressor which the customer may desire.

Cabinets are of steel, insulated throughout, and grilles are of Uniflo design. Peerless Thermek surface is used in three different places in the new self-contained units; (1) the evaporator coil, (2) the lower compartment cooling coil, and (3) the water cooled condenser.

The new Peerless multi-outlet thermal expansion valves provide for even distribution of refrigerant in the evaporator coil. The unit is said to be complete, except for the compressor, motor, and drives.

Known as the "Weather Beam" unit, standard equipment includes automatic temperature control, high pressure cut-out, compressor motor starter, magnetic liquid solenoid valve, fan and compressor selector switch, fan motor overload relay, and automatic water regulating valve.

Units are available for operation with 3-phase 220-volt 60-cycle current, and an optional feature is an ozonator, including rheostatic control.

**Emerson Buys Plant
Site Near St. Louis;
Ends Talk of Move**

ST. LOUIS — Emerson Electric Mfg. Co. has acquired 22½ acres of land at West Florissant Rd. and the Wabash railroad tracks, in St. Louis County, for construction of a one-story building of 35,000 sq. ft. area, to house manufacture of a new line of motors. The building will be ready for occupancy by Aug. 1.

The property was acquired in the name of Emerson Electric Building Co., a new corporation, but will eventually be transferred to Emerson Electric Mfg. Co.

Temporarily at least, the company will retain the five buildings it now occupies in downtown St. Louis, at 1824 Washington Ave. Whether one or more of the downtown buildings may later be abandoned and operations expanded at the county plant depends upon future developments. R. H. McRoberts, attorney for the company, said.

There will definitely be no move to any other city, the management (Concluded on Page 2, Column 3)

**Air Conditioner
And Range Sales
Gains Reported****Biggest Jump Taken
By Self-Contained
Cooling Systems**

WASHINGTON, D. C.—Orders for air conditioning systems and accessory equipment booked by 51 U. S. manufacturers during January totaled \$971,974, as compared to \$852,834 in the same month a year ago, according to reports made to the Department of Commerce.

The report covers equipment for both summer and year-around use.

Orders for self-contained summer cooling equipment amounted to \$176,606 during the month, as compared with \$73,200 in the same month last year, but those for cooling systems not self-contained dropped to \$53,373, as against \$70,348 in January, 1939.

Central station systems for comfort cooling also dropped to \$84,685 in January, after totaling \$198,829 in the same month of the preceding year. Year-around systems, however, rose to \$203,812 this January, compared with a total of \$125,349 in the same month of 1939.

Sales volume for the month was largest in the cooling unit classification, with orders for this type of equipment totaling \$324,807. Units of 50 hp. and up had orders totaling \$185,223, with those between 10 and 25 hp. amounting to \$47,351. Orders for evaporative condensers amounted to \$36,639 during the month, as compared with \$39,997 in the same period of 1939.

**Nema January Range
Shipments Up 30%**

NEW YORK CITY—Shipments of electric ranges to U. S. distributors and dealers during January showed an increase of approximately 30% over those for the same month of the preceding year, according to National Electrical Manufacturers Association statistics.

January domestic range shipments totaled 36,395 units, as compared to 28,074 for the same month of 1939. Shipments by 19 Nema manufacturers are included in the report.

**Self-Contained Jobs
Top '40 Air Cooling
Installations In N. Y.**

NEW YORK CITY—Reports of 31 air conditioning installations during February by dealers in the territory served by the Consolidated Edison Co. system bring to an even 100 the number of jobs accounted for during the first two months of 1940.

Self-contained units continue to dominate this year's installations, with 100 such units said to be in use on the jobs reported for the first two months. Although the utility's statistics do not make a specific classification, it is likely that about 20 of the 100 jobs reported so far do not include self-contained units, since they are above 20-hp. capacity.

Restaurants led February installations, with 13 jobs reported, while retail stores, with four, was second, and showrooms, with three, third. Single installations were reported in beauty shops, hotel guest rooms, offices, department stores, public buildings, theaters, hotel public rooms, funeral parlors, and for storage purposes.

Of the 100 self-contained units so (Concluded on Page 2, Column 2)

Purchasing Agent

JOSEPH A. SCHULTZ

**Westinghouse Promotes
Joseph A. Schultz**

MANSFIELD, Ohio—Joseph A. Schultz has been appointed purchasing agent of the Mansfield works of Westinghouse Electric & Mfg. Co. to succeed J. E. Lautsbaugh, who left the company on March 1.

Mr. Schultz, a native of Boston and a graduate in mechanical engineering of Northeastern university there, has been with Westinghouse since November, 1938. Prior to that time he spent eight years as development engineer and service manager of a firm manufacturing chlorine control apparatus and radio telephones.

He spent five months in the Westinghouse purchasing department at Pittsburgh, and has been connected with the Mansfield plant since April, 1939.

**Lindop Hardware Remodels
Store In Dallas**

DALLAS, Tex.—Lindop Hardware Co. is remodeling its store here, providing a larger display space for electrical appliances.

**Small Self-Contained
Units Far Ahead In
New York Installations**

(Concluded from Page 1, Column 5) far installed in air conditioning jobs in the metropolitan area, 76 were of 1½ capacity or less, and the remaining 24 of 2-hp. capacity or larger.

Here is a classified tabulation of installations for the first two months of the year:

**WHERE AIR COOLING HAS BEEN
SOLD IN N. Y. THIS YEAR**

Residential	14
Bank	1
Barber-Beauty Shops	2
Hospital-Laboratory	1
Hotel-Guest Rooms	2
Hotel-Public Rooms	1
Funeral Parlors	1
Office Buildings	2
Offices, Doctors'	4
Offices, Misc.	13
Restaurants	15
Stores, Department	3
Stores, Retail	11
Public Buildings	1
Showrooms	12
Theaters	5
Misc. Commercial	10
Candy Mfg.	1
Storage	1
TOTAL	100

**Norge 4.2 Foot Model
Bought For Army Posts**

WASHINGTON, D. C.—The Procurement division of the United States Treasury has contracted with Norge division, Borg-Warner Corp., to supply small household type electric refrigerators of 4.2-cu. ft. capacity to posts of the Army, Navy, Marine Corps, and Coast Guard. The contract extends through Jan. 31, 1941, and deliveries are to be made as requisitioned.

A contract also has been awarded Norge by the United States Air Corps for 58 special storage refrigerators ranging in capacity from 27 to 100 cubic feet. The storage units are required for American air fields on the continent, as well as in United States possessions. Delivery is to be made during March.

Added Feature

The new 'Humichest' compartment in two Westinghouse deluxe models has its own glass door, and special features in the compartment itself. For food that needs high, constant humidities, these models have the "dew" drawer as a special compartment.

**Two Westinghouse
Models Equipped
With 'Humichest'**

(Concluded from Page 1, Column 3) fruit basket and liftout section in the center shelf. A feature of the Humichest in both the 8 and 6-cu. ft. models is a "dew drawer" for small fruits and vegetables requiring constant high humidity. Made of white porcelain with chromium-trimmed front, the drawer holds 10½ quarts and maintains humidity of 95 to 100%, it is said.

Performance of the new development has been studied in tests in the Westinghouse Institute at Mansfield. These showed that fresh fruit and vegetables such as cranberries, lettuce, and celery, stayed market-fresh for two weeks and longer; that highly perishable foods like apple sauce and leftover chicken and noodles stayed fresh and appetizing for as long as 10 or 12 days, it is reported.

Most conclusive of the tests was with egg yolks. A dozen yolks, placed in a standard refrigerator, dried out in one day, while those placed in the Humichest reputedly were still fresh and moist and entirely usable after seven days, according to claims made by the company.

**Emerson Co. Purchases
New Plant Site In
Area Near St. Louis**

(Concluded from Page 1, Column 4) announced, and while the company will not at present take advantage of the offer of members of Local 1102 of the United Electrical, Radio and Machine Workers' Union that employees match the \$100,000 offer from Evansville, Ind. by advancing \$100,000 from wages to pay cost of moving to the new site, the offer will be accepted if full removal to the county plant is decided upon within two years.

The company, its statement said, will buy new equipment for the additional plant, and pay cost of moving some of its present equipment there. The move is expected to increase the company's payroll by an additional 200 persons.

It was announced that the company would put into effect for the fiscal year ending next Sept. 30, a plan to distribute among employees 15% of net profits after preferred dividends. This is in line with the union's proposal that the 15% be set aside for repayment of the advances from employees' pay.

The 22½-acre tract in St. Louis County is part of 162 acres in that neighborhood on which Emerson took options some time ago. No plans are under way at present to buy the remainder of the tract, it was said.

**THE COLD
CANVASS**

By B. T. Umor

(Concluded from Page 1, Column 1) He had not the money, he explained, to begin building his machine, but needed only a comparatively small sum—\$54 to be exact.

With \$54, he said, he could build a working model for which the world would beat a path to his door.

Each of the two lawyers quickly shelled out the \$54, and for this rather paltry sum, papers were drawn up in each instance, making the attorneys partners on a 60-40 basis.

Time passed and the attorneys heard nothing further. They made a checkup, and found the "inventor" had vanished. From the police each learned that he had a fellow "sucker."

**'Sandy' Bows To One
Of His Own Men**

No one in the refrigeration business knows how to get publicity better than does Clarence F. "Sandy" Pratt, president of the California Refrigerator Co. San Francisco parts enterprises and his flair for showmanship in industry affairs have put his picture and name in the public and trade press many a time.

So what happens? In the Feb. 19 issue of Life magazine in an advertisement for the Dodge Motor Car Co. is a photograph, big as life, of Jess Rauch, chief engineer for Mr. Pratt, who gives a testimonial for the cars. The industry probably knows no more retiring character than Mr. Rauch. However, "Sandy" was very sporting about it, as witness the report of the incident in "Cold Facts," the California Refrigerator Co.'s house organ:

"Sandy" is rather taken aback, as he has always been our No. 1 publicity man, but he hasn't made a publication like Life as yet. Guess you better wake up, 'Sandy,' or there may be a better man than you be, 'Gunga Din.'

**Joe Stalin Must
Be After Us**

Recently the NEWS advertised for a new stenographer. Applicants were required to tell about their schooling and previous experience in considerable detail. One girl had:

Been trained in "foreign service" at a Moscow school.

Studied "diplomacy" in several foreign centers.

Worked in the National Youth Administration after coming to America.

If ever a "spy scare" were to hit the offices of the Business News Publishing Co., this was the time. Younger members of the staff perked up over the prospect of seeing a slinky siren in black silk, with long black hair coiled at the back of her neck, ear-ringed and sporting a long cigarette holder.

Our Finnish clean-up girls were carefully held in readiness as a flying squadron in case the Russian "countess" would arrive with a bomb in each hand.

But it all petered out, after all. Joe Stalin must have had more important work for her. After all, there's an election coming up!

* * *

**Nominated Because of
Air Conditioning?
It Could Be**

Damon Runyon in his column "On the Brighter Side," suggests that the Republicans, during their national convention sessions in Philadelphia, hold their "secret sessions" in a certain Philadelphia hotel because it has air conditioning. What with all the "hot air" that is shot about at these conventions and the odor that has permeated some of the political deals that have distinguished such conclaves, it seems that air conditioning might be in order for the whole convention.

Come to think about it, air conditioning might have altered the course of American history had it been available at some of those conventions back in the twenties, where the heat was a factor in wearing down some of the delegates so that they compromised on a candidate more quickly than they might otherwise have done.

* * *

**This Customer Really
Laid It on the Line
For His Refrigerator**

Selling a new electric refrigerator to a customer in nearby Buchanan was a real "financial burden" to J. W. Waynick of the Waynick Furniture Co., Roanoke, Va., for the customer paid off the \$179.75 purchase in nickels—37 pounds of them.

Another oddity in the sale was that the 3,595 nickels were all of the "liberty head" variety—symbolic, perhaps, of the freedom from food-keeping worries that the new refrigerator will bring.

While Mr. Waynick was no doubt pleased to be paid off in "hard money," at the same time it must have been a temptation not to take all those 5-cent pieces and try to break all the slot machines in the country.

**PACKAGED COLD
TRIGGER
CONTROLLED**

1. EASY TO STOCK... PACKAGED COLD ... QUICK SELLING.
2. FROM CARTON TO WALL IN NO TIME AT ALL.
3. MOVE THE DIAL—MORE COLD—LESS COLD—JUST AS THE CUSTOMER WISHES.



PACKAGED READY TO SELL

RECTANGULAR
GUN COOLERMODEL DD
GUN COOLER

EVERYTHING IN "LOWSIDE" EQUIPMENT
SEE YOUR JOBBER FOR 1940 CATALOG

PEERLESS OF AMERICA, INC.

MIDWEST FACTORY, GENERAL OFFICES — 515 W. 35TH STREET, CHICAGO
NEW YORK FACTORY PACIFIC COAST FACTORY SOUTHWEST FACTORY EXPORT DIVISION
41-20 34TH STREET 1000 SOUTH MAIN ST. 2218 N. HARWOOD ST. P. O. BOX 636
LONG ISLAND CITY LOS ANGELES, CALIF. DALLAS, TEXAS DETROIT, MICH.

**150 LBS. NET—on the Nose**

Exact Weight Simplifies Billing and Records for Virginia Customers

When you buy from your Virginia jobber, you know you're getting what you ask for. Virginia leads the field in guaranteeing standardized net weight in refrigerant cylinders to jobbers and service men—and Virginia's system of net weight control is foolproof.

Just another example of how Virginia's flexible service helps the Virginia jobber to help you.

EXTRA DRY ESOTOO V-METH-L METHYLENE CHLORIDE



VIRGINIA SMELTING

COMPANY
Located at tidewater, Hampton Roads
WEST NORFOLK — VIRGINIA

HERE'S THE DOOR TO EASIER REFRIGERATOR SALES IN 1940



The door of the Crosley Refrigerator is the sales feature no other refrigerator has. Women like it. Hundreds of thousands of owners say so. The Crosley Refrigerator has a welded one piece steel cabinet finished in high baked Dulux, and . . .

eggs go in this special rack to save the room of a bowl or carton on the inside shelves.

The Crosley Refrigerator has a hermetically sealed unit warranted for 5 years, and . . .

small things like fruits pack compactly on these shelves to leave room for bulky foods inside.

The Crosley Refrigerator has quick release ice cube trays, glass covered crisper, full sliding shelves, and . . .

little things are always in sight here where they won't be lost to eye and appetite.

Read these red lines over again! That's the "exclusive" Shelvador story. That's what appeals to women. That's "convenience." Convenience is what women want most in a refrigerator. AND you can demonstrate that the Shelvador permits the storage of more food than any other refrigerator built! Mechanically, its performance is unsurpassed. NO important 1940 electrical refrigerator developments are missing. In details of finish and equipment no refrigerator is better.

WRITE — PHONE — WIRE
your distributor or the Crosley Factory.

The **Shelvador**

(SHELVES-IN-THE-DOOR)

Shelvadors sell at \$99.95 to \$249.95 with models designed for easy sales steps all the way up!

You can instantly fit any family need and pocketbook!

Crosley incorporates the best features of 1940 electric refrigeration, and only Crosley has the Shelvador.

(Prices slightly higher West of the Rockies.)

sells refrigerators

CROSLEY

THE CROSLEY CORPORATION -- Cincinnati
POWEL CROSLEY, Jr., President Home of "the Nation's Station"—WLW—70 on your dial



(1) Frank Hogan, Jr. and Don Crosby learn refrigerator engineering features of the 1940 Crosley line from R. H. Money (lower right), chief engineer, and J. W. Craig (lower left), his assistant. (2) Mrs. Evelyn Haynes, home economist, prepares a complete meal in the Crosley

electric range. (3) Looking over the washer line are Jack Zumwalt, P. W. Bialkowsky, H. F. Jaax, and C. J. Stevens. (4) Fiber glass range insulation is shown by R. J. O'Connor, range-washer manager, to Grant Layng (left) and Fielding Robinson of New York City and C. S. Tay of

Chicago. (5) Discussing range sales prospects are W. M. Shipley, major account sales manager; T. W. Berger, general sales manager; R. C. Cosgrove, vice president and general manager; and Mr. O'Connor. District managers reported improved sales prospects for all Crosley appliances.

"Standing right there are two especially good reasons why you'll like a DULUX finish!"

REG. U. S. PAT. OFF.



"UNLESS I'm very greatly mistaken, Madam, these boys of yours aren't the quiet, restful type. In fact, I'll go so far as to venture that they occasionally make you think a cyclone has struck your house."

I could only nod. He was painfully correct.

"That's why I say these boys are two mighty good reasons why you should have a DULUX finish on your refrigerator. You see, DULUX is a tough finish. It's resistant to hard wear, grease and stains. It keeps that snowy whiteness, in spite

of punishment.

"Another thing about DULUX: You'll never find a finish that's easier to keep clean."

I nodded again. I was certainly interested in anything that saves work around the house.

"DULUX is made by Du Pont," the salesman continued. "And I'm sure you know the reputation Du Pont has for making only highest quality products."

Once more I nodded. And that was the nod that led to my saying "I'll take it."

DU PONT ON THE AIR—Listen to "Cavalcade of America" every Tuesday, 9 p.m. E.S.T., NBC Networks



DULUX

REG. U. S. PAT. OFF.

THE MODERN FINISH FOR MODERN LIVING...It saves work



Westinghouse '39 Orders \$214,239,044;

Third Highest In Company's History

EAST PITTSBURGH, Pa.—Incoming orders in 1939 reached the third highest level in the history of Westinghouse Electric & Mfg. Co., the company announced in its annual report for the year.

Orders received during 1939 amounted to \$214,239,044, compared with \$149,662,776 in 1938, an increase of 43%. (These and all succeeding figures include all operations of the Westinghouse company, and not just those of the merchandising division at Mansfield, Ohio, alone.)

Net sales billed totaled \$175,071,363, compared with \$157,953,216 in 1938, an increase of 11%. Unfilled orders at Dec. 31, 1939, were \$70,821,960 compared with \$40,188,150 at the end of 1938, an increase of 76%.

Net income for the year was \$13,854,365 compared with \$9,052,773 in 1938, an increase of 53%. Only 1929 and 1937 were better years, declared A. W. Robertson, chairman, and G. H. Bucher, president, who signed the report.

"It is impossible to determine how much of the improved business in 1939 was due to war abroad," they said. "Undoubtedly business was stimulated by that cause. It is our hope and expectation that the country will be able to escape participation in war."

"We believe that good business will be maintained in the coming months, whether the war abroad continues or not. This viewpoint is shared by many business leaders and economists."

"A healthy sign is the widespread basis of the recovery, as indicated by sales. Our business in every line is better; improvement in industrial, central station, marine, and other 'heavy industry' equipment is matched by similarly increased demand for refrigerators, electric ranges, lamps, and other consumers' goods."

Discussing the engineering and research progress of the year, Mr. Robertson and Mr. Bucher pointed out that Westinghouse "differs in many ways from most manufacturing enterprises."

"It is, for example, not one business, but many," they reported. "It makes not only thousands of different things, but it also undertakes the solution of new problems which arise daily in the manufacturing processes of its customers. A sub-

stantial percentage of the time of its engineers and the facilities of its research laboratories is spent on such solutions, which are often of priceless value to the public."

One 1939 development which may have particularly widespread significance, the report pointed out, was the introduction of a process for tenderizing beef quickly and economically by a method which utilizes the Westinghouse Sterilamp.

"Introduced initially by the Kroger Grocery & Baking Co. on a trial basis in Cleveland, public response was so excellent that the original tenderization plant required doubling in size during the year. Similar plants are now being built in six new territories. By May 1, 1940, it is expected that 1,500,000 lbs. of beef weekly will be tenderized by this method. Known as the 'Tenderay' process, it was the outcome of a three-year program of research, sponsored jointly by Westinghouse and the Kroger Food Foundation, at the Mellon Institute in Pittsburgh.

"One of the most spectacular fields of electrical investigation," the report continued, "is lightning research, which Westinghouse pioneered several years ago and has continued to date. Last year, as a result of knowledge obtained from this research, the company introduced a new line of completely self-protected distribution transformers which are immune to lightning strokes, heretofore responsible for many line failures during storms. These transformers are routinely 'lightning tested' on the assembly line."

"At East Pittsburgh, engineering work was begun on the first three main waterwheel generators for Grand Coulee Dam. These generators, the world's largest power-producing machines, will have a combined potential output of 324,000 kilowatts of electricity, enough to supply all electric power needs for a city of 650,000 persons."

The company has no bank loans or bonded indebtedness, the report pointed out. At Dec. 31, 1939, current assets amounted to \$118,546,088, and current liabilities to \$16,294,466, a ratio of 7.3 to 1.

Dividends totaling \$9,349,241 were paid during the year, or \$3.50 per share on each share of preferred and common stock.

How Attic Fan Operates Shown By 'Model' Home

CLEVELAND—Newest sales help offered by Lau Blower Co. to distributors and dealers selling "Niteair" attic fans and room coolers is a model house with miniature attic fan for use as a demonstrator either in the dealer's display room or the prospect's home.

The model house is painted cream color, with simulated clapboards and green shutters, a green roof, and simulated shrubbery around the base of the house, and contains a miniature "Niteair" fan with vent box style installation over the attic stairway.

Large cellophane window in the roof, and windows of the same material, permit prospects to see inside the house and watch the air circulated by the fan lift window curtains and move air current streamers. Cigarette smoke blown in through the downstairs window travels through the house and is exhausted through the attic window.

Dale Kuneman Named To G-E Home Laundry Field Staff

ST. LOUIS—Dale U. Kuneman, for the past three and a half years a sales counsellor for Orklin Electric Co., General Electric appliance distributor at Hartford, Conn., has been appointed a district representative for G-E home laundry equipment with headquarters here, serving distributors in the surrounding area.

Mr. Kuneman, a native of Haarlem, Holland, who was educated in engineering at the University of Leyden, has been a member of the Toppers Club, and the winner of many prizes in washer and ironer sales contests.

Range In \$100 Class Added By Westinghouse

MANSFIELD, Ohio—Two new range models have been added to the Westinghouse 1940 line. One of the new models, the Chieftain, is designed to meet the demand for a range fully skirted to the floor in the \$100 price class.

This model is a divided-top range, with three five-speed Corox units, a five-speed "economy cooker," a balanced heat oven with single dial control, all porcelain finish, and black hardware and switch knobs. Large 8-inch surface unit is to the front, and switch knobs are mounted on the back splasher.

The other new model, the Diplomat, is a full-sized range with three storage drawers at a zone 1 price of \$129.75.

One of the storage drawers can be equipped with a warming element if desired. This model has three five-speed Corox units and five-speed "economy cooker," a full-sized balanced heat oven with a single dial control, an oven "Signalite" and platform light, labeled switches, and black knobs.

Stoker Selling Department Opened By Georgia Power

ATLANTA—Another appliance-automatic stokers—has been added to the Georgia Power Co. sales list. At present, sale of stokers is confined to the Atlanta division only. The Link-Belt line is being handled, and Atlanta division men have recently completed a sales course on the product.

Engineering, installation, and servicing will be handled by Campbell Coal Co., Link-Belt distributor in Atlanta.

Wisconsin Dealers Hail Springtime's Return With Special Sales Promotion Stunts

MILWAUKEE—Appliance dealers in a number of Wisconsin cities staged special promotions in connection with March "spring opening" celebrations.

In Marinette, merchants featured a \$50 merchandise contest with entrants called upon to designate the windows having letters of the alphabet forming the words, "Marinette Spring 1940 Window Unveiling and Style Exposition." In addition, contestants were required to write an essay of not more than 25 words telling why they like to shop in Marinette.

MARINETTE LETTER CONTEST

Individual letters in the windows of participating merchants were not concealed, but in some instances more than one letter appeared in a window. First prize was \$20, second, \$10, third \$5, and 15 dollar merchant certificates.

Participating appliance stores included L. O. Engedal, Gamble Stores, Gaspar's and Globe Housefurnishing Co.

CASH IN APPLETON

In Appleton, more than 100 stores gave away merchandise estimated in value at \$1,500 during the spring

Omaha G-E Supply Promotes Frider, Morris & Quest

OMAHA, Neb.—Three members of General Electric Supply Co. here have been promoted. Phil Frider, formerly city sales manager, has been promoted to sales manager of the new Sioux City, Iowa branch; Jerry Morris, formerly branch advertising manager, to city sales manager; and W. G. Quest has been appointed as the new branch advertising manager.

Brown & Co. Reorganizes; Changes Firm Name

KINGSTREE, S. C.—D. C. Brown & Co., General Electric dealer here and in Georgetown, has recently reorganized, and has changed its name to The Electric Sales & Service Co.

Officers of the new company are: Herb Brown, president; D. C. Brown, vice president; Cecil Quattlebaum, secretary; Ralph Davis, Kingstree sales manager; Frank Rhodes, Georgetown sales manager.

Since its reorganization, the firm has moved into improved quarters here which will be used as headquarters for both stores.

W. J. Flanagan Opens New Appliance Store At Springfield

SPRINGFIELD, Mass.—William J. Flanagan, former manager of Albert Radio & Appliance Store here, has announced the opening of a new store at 135 State St., operating under the name Proctor-Flanagan. The new store will carry a full line of electrical appliances.

Minneapolis Dept. Store Opens Appliance Section

MINNEAPOLIS—The Sampson Co., home furnishers, has installed a new home appliance department with S. C. Adkinson as manager. Gibson refrigerators are featured.

New Frigidaire Dealer

SOUTH PASADENA, Calif.—Live Appliance store has opened here at 1509 Mission Road, featuring the Frigidaire line. R. F. Kelley is manager of the new firm.

Burgess Changes Jobs

DALLAS, Tex.—Steve Burgess has been made city supervisor of major appliances for the Dallas stores of J. & R. Motor Supply Co. Mr. Burgess was formerly with W. A. Green Co. here in the electrical appliance department.

Kelvinator Opens New Factory Branch At Minneapolis

MINNEAPOLIS—A new factory branch to serve retail outlets in Minnesota, Wisconsin, North and South Dakota has been opened by Nash-Kelvinator Corp. at 708 S. Third St. here. The branch will be both a distribution and service depot for Kelvinator and Leonard refrigerators and Kelvinator household appliances. D. L. Harper has been appointed branch manager of the new branch factory.

Long Beach Store Modernizes

LONG BEACH, Calif.—Walker's department store here has enlarged and modernized its home furnishings department on the fourth floor. Werner Wendall has been named manager of the new major appliance section.

Dallas Dealers Sell 613 Refrigerators In January; Four Year Sales .47% of U. S. Total

DALLAS, Tex.—Total of 613 electric refrigerators were sold by Dallas dealers during January, with an estimated sales value of \$110,340. Sales totals for appliances sold during the month were:

	Unit Sales	Retail Value
Refrigerators	613	\$110,340
Ranges	3	450
Washers	153	10,710
Ironers	7	490
Vacuum Cleaners	413	20,650
Radios	1,401	49,036
Cookers and Roasters..	50	1,100
Attic Fans	7	1,400

Figures recently released by Dallas Power & Light Co. reveal that

Year	Unit Sales		Dollar Value (Retail)		Average Retail Price	
	Dallas	U. S.	Dallas	U. S.	Dallas	U. S.
1936	9,512	1,996,000	\$1,712,160	\$327,344,000	\$180	\$164
1937	9,797	2,310,000	1,567,520	395,010,000	160	171
1938	7,598	1,240,000	1,366,740	213,280,000	180	172
1939	7,603	1,840,000	1,292,510	307,280,000	170	167

Dallas appliance dealers sold .47 of 1% of the electric refrigerators sold in the United States during 1936, 1937, 1938, and 1939. The Dallas trading area population, estimated at 350,000, contains only .27 of 1% of the consuming public.

Comparison of Dallas and U. S. sales for the past four years show that only once, in 1937, did the average retail price per unit fall below the national average. In that year it was \$160 per unit, as compared to \$171, the national average.

The following table shows Dallas sales for the past four years as compared to U. S. sales, and gives average retail price for each year:

Only the PHILCO Refrigerator gives you all these extra features that mean Extra Sales-Extra Profits!

THE CONSERVADOR
This patented shelf-lined Inner Door gives you 26% more quickly usable space! Two-fifths of all food at your finger-tips without opening main compartment. No crowding in front, no wasted areas in back. Acts as a "storm door"—cuts electric bills, saves money.

FROZEN FOOD COMPARTMENT
A huge separate chamber, specially designed for frozen storage. Yes, a giant-size space in addition to the regular ice-cube chamber. Plenty of room in this Frozen Food Compartment for packaged frozen foods, ice cream and delicious frozen desserts.

DRY COLD COMPARTMENT
Some foods must have dry cold to preserve their purity. That's why no modern refrigerator is completely safe and healthful without it. The Philco Refrigerator has this spacious, separate Dry Cold Compartment for normal, all-purpose food storage.

MOIST COLD COMPARTMENT
Now, you don't have to cover foods to keep them from drying out! This Moist Cold Compartment preserves the flavor and color of "left-over" meats and vegetables without covers or special dishes. Cooled by exclusive Freshener Shelf... only Philco has it!

No matter what feature your prospect wants, the new 1940 Philco Refrigerator has it! And, in addition, new features and new services that no other single refrigerator can offer... that mean extra sales and profits for you! Tremendous merchandising support... generous dealer contract. See your distributor—or mail coupon now.

MAIL COUPON NOW →

**PHILCO RADIO & TELEVISION CORPORATION
DEPT. NO. 702 PHILADELPHIA, PA.**

Send complete details of your Philco Refrigerator proposition, including discounts and credit terms.

NAME _____

ADDRESS _____ COUNTY _____

CITY _____ STATE _____

Galveston, Texas Dealers and Salesmen Say Lower Prices Open Up New Field

'But There Can Be No More Cutting,' Retailers Chorus

GALVESTON, Tex. — An overwhelming majority of appliance dealers in this territory favor the new price schedules on household electric refrigerators. When surveyed by the editor of AIR CONDITIONING & REFRIGERATION NEWS, the Galveston dealers confirmed the results of an earlier canvass of dealers in neighboring Houston: Most of them believe that the new prices are in line with current market conditions.

"New prices give you a chance to sell up!" exclaims R. S. White, general sales manager of the Galveston Piano Co., Kelvinator and Philco dealer, and a veteran of many years in the appliance merchandising game. "I hope, however, that they stick to the price as advertised and do not cut prices," he adds. P. Drago of Kahn & Levy, a 10-year veteran in appliance selling, likes the new prices because "they'll get us into the lower price class."

"Absolutely!" says Jack Schwartz of Druss Furniture Co., Stewart-Warner dealer, to the question "do you think the new lower prices will help you sell more refrigerators?" The move, he says, "brings the price range into a greater distribution medium." And C. E. Tatum of Silksen-Shaw, Frigidaire dealership, declares that "we have already seen the good effects of reduced prices."

The viewpoint of a woman was given by Mrs. P. L. DeJean of Silksen-Shaw, Frigidaire dealer, who believes that "lower prices will attract more people to our stores and more and better sales will be made." H. J. Pratorius, finance manager and office manager of the Galveston Piano Co., Kelvinator and Philco dealer, believes that the new lists will enable the dealer to get into the "price market."

S. D. Goodall of Druss Furniture Co. votes a "no" to the new prices, saying "I think last year's prices were okeh. We don't want cheapness." But Earl D. Viser of Kauffman Meyers & Co., Westinghouse dealer, disagrees. "Just like for years this country needed a good 5 cent cigar, we've needed a good refrigerator at a low price, and this year we really should 'go to town' with this popular-priced refrigerator."

Katharyn Campbell, home service adviser for the Houston Lighting & Power Co., Westinghouse dealer, believes that the new lower prices will "interest those who have not felt they could afford a refrigerator." The same thought is expressed by Max Baum, proprietor of Michael's Jewelry Co. and the Palace Furniture Co., Hotpoint dealer.

"Yes—but—" votes Ted Schreiber of Schreiber & Miller Furniture Co., General Electric outlet. "Lower prices will tend to raise unit volume, but dollar value and earnings of salesmen will suffer," he states. F. B. Heiner of Druss Furniture Co., Stewart-Warner outlet, sees the lower prices "giving a broader field" to the dealer and salesman. Owen Garrigan of Houston Lighting & Power Co. says, "This should be

These Distributors Are Enjoying a Big Season



Refrigeration distributors in the Houston-Galveston area, as caught by the editor's camera, beam approval of the early start refrigeration is getting this year in the following order: (1) E. A. Cox of Cox &

Blackburn, pioneer Frigidaire distributor; (2) Roger Pluick, Automatic Sales Corp., Norge distributor; (3) George Bryant, widely known refrigeration sales manager of Graybar Electric Co. (Hotpoint distributor);

(4) R. V. McDonald, appliance sales supervisor, General Electric Co., Dallas; (5) "Ham" Smith, Readers Wholesale Distributing Co., Crosley distributor; and (6) Emmett Joyce, manager, Peaslee Gaulbert Corp.

the biggest year in the history of electric refrigeration."

"The lower prices get us into the price field of all the cheap competitors with a better product," states E. B. Barnett of Silksen-Shaw. F. V. McKey and Ralph Trout of the same company voice the opinion that the prices will enable them to reach "the low income bracket."

Voting "no" is Abe Druss, general manager of Druss Furniture Co., Stewart-Warner dealer, who says: "The lower prices will have a tendency to reduce trade-ins." David Brizzolara of Sears-Roebuck declares, "I think the public is educated to the fact that price does not mean everything."

"The new low prices will make people refrigerator minded, and give us a chance to sell them up to a higher price and better refrigerators," asserts Bernard Miller of Schreiber & Miller Furniture Co., General Electric dealer. "The price is right, but I advocate more down payment," declares Robert F. Gates of the Nelson Furniture Co.

J. A. Schuman of Lack's Auto Supply, Leonard dealer, believes that "the new low prices will get the attention of customers who have the idea that refrigerators are as expensive as they were three or four years ago." But D. M. Goldhirsh of the Star Furniture Co., Leonard dealer, votes "no, because the cost to maintain service is the same."

The standard of profit should be upheld."

One mail order house man who votes for the lower prices is Merle Jones of Montgomery Ward & Co. "More customers will be able to own a refrigerator," he declares. T. Miller, also of Montgomery Ward, agrees with him. "The new low prices reach the low-salaried class," says Marvin E. Cole of Westinghouse Electric Supply Co. in voting "yes."

L. L. Silksen of Silksen Co., Frigidaire dealer, declares: "We are going to get a larger percentage of the low price field." This thought is concurred in by A. T. Barclay of the same company, who points out that "the low price field has not bought to any great extent." Ben Lipnick of Schreiber & Miller Furniture Co., General Electric dealer, believes that the "temptation to trade in old models should be greater."

Edward Schreiber, manager of Schreiber & Miller Furniture Co., votes "yes" because "the values will convince the consumers that they can now buy this unit at a saving."

L. O. Sharp of Houston Lighting & Power Co. points out that a "bargain interests most people and they will buy sooner than they had planned." Joseph H. Lang of the power company votes "yes," if "all will sell at the same price." Another power company man to vote in the affirmative is C. R. Provine.

E. C. Legge of Galveston Piano Co., Kelvinator and Philco dealer, says "definitely, yes," on the question of whether the new low prices will help him sell more refrigerators, but qualifies it by saying, "however, no cut prices!" D. Craig and Floyd T. Curtis of the same concern also vote yes, pointing out that "the public is price minded."

Voting "no" are three Sears-Roebuck representatives, G. W. Campbell, K. D. Busbee, and C. E. Riney. Says Mr. Campbell: "The new prices will make the refrigerators seem too cheap."

25th ANNIVERSARY 1915-1940

ANSUL SULPHUR DIOXIDE ICE-X METHYL CHLORIDE

A recent Ansul advertisement said, "No order for Ansul refrigerants ever spends the night, unfilled, in an Ansul office basket." One of our foreign agents read it, elected to test our claim. His report: "Thank you very much for your wire . . . apparently your advertising is no idle boast when you say, Today's Ansul Orders Are Being Shipped Today." You can be certain of that when your order specifies Ansul products.

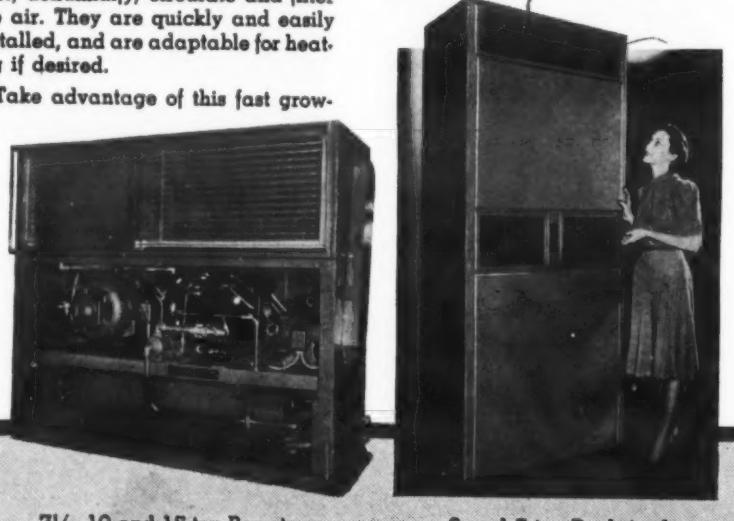
ANSUL CHEMICAL CO., MARINETTE, WIS.

THERE IS AN ANSUL JOBBER NEAR YOU ANXIOUS TO SERVE YOU BETTER

... with CURTIS PACKAGED AIR CONDITIONERS

CURTIS
REFRIGERATION
AIR CONDITIONING
COMMERCIAL

ing market for packaged air conditioning units—the wide range of capacities offered by Curtis meets all requirements from 3 to 15 tons. Write today for complete information on the Curtis line.



3 and 5 ton Packaged Type Air Conditioner

The Curtis line of packaged air conditioners now includes units of 3, 5, 7½, 10, and 15 tons capacity—meeting the demands of a wide variety of markets with complete mechanically refrigerated air conditioning at low cost.

The market for this popular type of air conditioning equipment is growing day by day. It includes:

Retail Stores Restaurants
Offices Apparel Shops
Banks Beauty Parlors
Drug Stores Barber Shops

In fact practically every type of retail establishment is a prospect, and with this Curtis equipment they can now profit from the advantages of air conditioning without costly installation expense or disturbance to fixtures.

**CURTIS REFRIGERATING
MACHINE COMPANY**
Division of Curtis Manufacturing Co.
1912 Kienlen Ave. St. Louis, Missouri

7½, 10 and 15 ton Remote or
Central Type Air Conditioner



W. J. Aicklen, Jr., Galveston vice president of the Houston Power Co.

"Before You Invest INVESTIGATE"

That's a good practice for the buyer of coils or coolers. REMPE quality helps make sure your installation makes good.

PIPE COILS
FIN COILS
UNIT COOLERS



REMPE CO.
340 N. Sacramento Blvd., Chicago

REMPE KNOWS!
ask REMPE

Rural Electrical Shows Are 'Low-Cost' Advertising For Houston Utility

HOUSTON, Tex.—Plays, pictures, prizes, and refreshments, coupled with displays and demonstrations, are utilized by Houston Lighting & Power Co. here to promote electrical appliance sales in rural sections served by this utility. The program, according to G. W. Pattillo, rural service supervisor, "works out to be just about the cheapest kind of advertising that can possibly be used to reach the rural and farm people."

For several years the company has staged its electric shows usually just after new power lines have been completed in some section. A lodge hall, dance hall, or school auditorium is rented or donated and personally addressed announcements are issued inviting the entire family to attend.

DEALER DISPLAYS INVITED

Company linemen install wiring facilities for appliances, lamps, and cooking equipment, special lighting, both interior and outside, and the necessary transformer capacity. Dealers are invited to install exhibits and the utility's merchandising department also has a display.

Demonstrations by company salesmen and dealers are given "between acts" on the amusement program, attention being called to them over a public address system which is also used to amplify voices of actors. "Eats" are usually hot dogs and cold drinks, cooking and serving being the job of the girls in the company's Home Service department. Electric roasters are used to prepare the food, and the girls at the same time demonstrate ironers and lighting appliances.

At the conclusion of the show drawings are held for door registrations and prizes are awarded, these usually being lighting units, portable lamps, or refrigerator desserts. Sometimes, also, dealers or hatchery men contribute baby chicks, a sack of feed, or other merchandise. Registration slips include space for marking appliances the visitor to the show may be interested in and thus leads are obtained for follow-up by dealers and the company's farm sales department personnel.

This section of Texas was formerly a one-crop country with cotton as king, but lately farmers have been diversifying their operations to include livestock, poultry, and dairying. The object of the shows, Mr. Pattillo explained, is thus always to demonstrate uses of electricity and stimulate buyer interest. Attendance has always been large, especially in dairy and poultry districts.

"Quite often," Mr. Pattillo continued, "some one device turns out to be the main attraction and produces the most sales on follow-up. For example, our first rural extensions were into districts close to the city and the water pump or running water display was the center of attraction. Sharing with this was the electric refrigerator and electric roaster. So many of the buyers had formerly lived in town and were anxious to continue use of these conveniences."

When dairy districts were reached by the high lines milk coolers topped the list, because of their many money saving features. Large dairies which had spent many hundreds of dollars yearly for ice were quick to see the economy of using electric coolers and a high saturation of these quickly resulted, Mr. Pattillo said. More recently electric milker demonstrations have attracted the farmers because of their labor-saving possibilities. Then as the lines branched out into poultry raising areas the electric brooder became the big attraction.

SKITS ARE POPULAR

"One of our latest rural shows at Peters, Tex.," said Mr. Pattillo, "brought out new interest when we demonstrated electric feed grinders. Most farmers were accustomed to tractor power for this job and could not realize that a small motor was doing the work."

Regarding the plays and skits which highlight the programs and prove so popular with the rural folks, Mr. Pattillo said they often include blackface acts with varying plots. "The Parson's Daughter" was one, which sold the idea of proper lighting. Another, entitled,

"While the Cat's Away," dealt with the adventures of a colored porter and colored delivery boy left in charge of an appliance store, and developed sales points on various appliances.

Quite popular is a dramatic skit in pantomime, called "KWH vs KHW," ("Kilowatt Hours" versus "Killing Housewives") and a ventriloquist act featuring Elec Tristy.

Supporting his statement as to cheapness of the advertising, Mr. Pattillo says the cost runs about \$1 per customer, where cost of meals for company personnel is figured in, but not charging time for employees.

Dept. Store Pares Costs Of Advertising To 1 1/2% of Sales

HERSHEY, Pa. — The Hershey Department Store in this town of 2,500, does an annual volume of \$100,000 on electric refrigerators and appliances at an advertising cost of 1 1/2% on sales, without using outside salesmen to contact prospects, and by limiting credit terms to 12 months.

The store uses direct-mail on a customer list of 20,000 about four times a year. Spot announcements are made four times a day over a nearby broadcasting station which reaches most homes in the store's trading area. Newspaper advertising is concentrated in the small-town daily and weekly newspapers published in surrounding towns.

"Our method of handling deferred payments is to limit credit terms to 12 months and to eliminate finance charges on sales," said J. L. Hosler, general manager. "We take no long credit risks. This is proved by the fact that we have made only one repossession in 12 years."

The store's method of financing deferred payments is to take a series of interest bearing notes for the balance due. For instance, if a customer agrees to pay a balance of \$150 in 10 months, the store takes 10 notes of \$15 each, bearing interest at 6%. These notes are then discounted at a local bank, which handles them like any other commercial paper. The customer's obligation is to the bank, and he receives a bank notice when a note becomes due.

A Microscope Is Used To Examine Results of G-E Washer Test



Peering through the microscope is Leonard Wood, manager of the J. C. Penney Co. store in Boise, Idaho. Object of his inspection is a Penney sheet which has been "put through the mill" in a General Electric washer. Mr. Wood cooperated actively with Harry Baker, manager of Holmes Electric Appliance Co., G-E dealer in Boise, in the first-of-the-year drive staged cooperatively by the Penney stores and the General Electric Co.

Timed to coincide with January "white sales" in retail stores throughout the country, this campaign was designed to effectively demonstrate the durability of Penney sheets and the gentle action of the G-E washer.

In Boise, Mr. Wood took sheets which had been through the equivalent of five years of hard washing and ironing and subjected them to his microscope test. Salesmen and demonstrators from the appliance dealership did family washings on the Penney store's sales floor, giving a tea towel to every woman who would both wash and iron her laundry with the store's G-E equipment.

A total of 117 towels were distributed, and 956 demonstrations were made in 12 days. The local campaign was supported by newspaper advertising of both the Penney store and the G-E dealership. The local paper also ran a special story on the microscope inspections.

**SAVES CUSTOMER SQUAWKS,
WASTED GAS AND OIL,
CALL-BACKS, DELAY**

**Dayton V-BELT
REFRIGERATION Service Kit
FOR THE BACK OF THE CAR**

NO EXTRA TRIPS,
NO SALES PASSED UP

(Dayton V-BELT)



OPEN ON THE JOB—the easy to handle Dayton V-Belt Service Kit includes an assortment of 43 fractional horsepower V-Belts, which are visible at a glance—also a Ready Reference V-Belt Replacement Catalog and the handy V-Belt Matchometer for quickly measuring worn-out belts and instantly identifying the correct replacement Dayton V-Belt.

THE DAYTON RUBBER MANUFACTURING COMPANY, DAYTON, OHIO
WORLD'S LARGEST MAKERS OF V-BELTS



80% OF V-BELT REPLACEMENTS for household refrigerators are included in the assortment of 43 Dayton V-Belts for all leading makes such as Frigidaire, General Electric, Kelvinator, Norge, Servel, Westinghouse and others. Complete with V-Belt Matchometer, Replacement Catalog and Telescopic Carrying Case—saves you \$7.85 during introductory period.



FITS IN THE BACK OF ANY CAR—even a motorcycle compartment—The Dayton V-Belt Service Kit gives "on the job" V-Belt replacement service for all leading makes of automatic refrigerators. Saves call-backs, delay, customer squawks.

EASY TO HANDLE—compact, tough and durable, telescoping* case of Swedish Fibre, richly finished in brown—with heavily reinforced corners and steel edges—strong leather handle and all-round web strap.

*Expands to hold 85 Belts if desired.

SAVE \$7.85 DURING INTRODUCTORY PERIOD

ORDER ONE FOR EACH SERVICE CAR

43 DAYTON REFRIGERATOR V-BELTS, REGULAR PRICE . . . \$23.48

SWEDISH FIBRE CARRYING CASE, REGULAR VALUE . . . \$ 6.35

DAYTON V-BELT MATCHOMETER, REGULAR VALUE . . . \$ 1.50

TOTAL \$31.33

COST DURING INTRODUCTORY PERIOD ONLY \$23.48

YOU SAVE \$ 7.85

USE THIS COUPON
SAVE \$7.85

V-BELT SALES DIVISION,
THE DAYTON RUBBER
MANUFACTURING COMPANY,
Dayton, Ohio

Gentlemen:

Ship me, through nearest jobber,
complete Dayton V-Belt
Service Kits at the special price of
\$23.48 each.

I understand each Kit includes
assortment of 43 V-Belts, Ready
Reference Catalog, V-Belt Match-
ometer and Swedish Fibre Carry-
ing Case.

NAME _____

ADDRESS _____

CITY _____

STATE _____

Resort Hotel Profits as Room Conditioners

Draw Trade From Physicians and Patients

TUCSON, Ariz.—As a direct result of the economy of operation of a system of remote control, individual air conditioning units for each room, installed in the Santa-Rosa hotel of this city several years ago, 100 tons of similar equipment has been purchased and are being installed in the Madison hotel, Harlingen, Texas, and the Cortez hotel, Weslaco, Texas.

All three installations have been made by Copeland Refrigeration Co. of Kansas City, Mo. Advantages of the type of system installed, as pointed out by Nathan Baraban, Copeland of Kansas City's president, are:

1. Economy. A card on the door of each room requests that guests turn off the air conditioner when they leave the room. A double light switch provides for this. Thus a smaller unit can be used.

2. Modernization. The individual units in the guest rooms are suspended from the ceiling of the clothes closets, are noiseless as well as hidden.

3. Increased Business. Due to the fact that the summer heat in this section reaches 128° F. many hotels close during the hot months. The Santa-Rosa remains open the year around. Since installation of the air conditioning system the demand by local doctors for office room in this building and additional rooms for their patients has built up a year-

around clientele. Which means that patients, usually victims of an ailment such as high blood pressure, which condition is aggravated by excessive heat, come to the hotel and receive their treatment and rest without ever leaving the hotel. Also the Santa-Rosa gets a large share of the transient trade by remaining open during the hot weather.

GOOD ADVERTISING

4. Free Advertising. Being one of the very few hotels in this area with air conditioning, the hotel's reputation draws many guests from neighboring towns who simply come in to get a good night's rest. Temperature at night in the Santa-Rosa is 65° F. when often it is 112° F. outside. Word of mouth advertising which attracts local trade to the Santa-Rosa says, "No matter how hot it is outside, you'll have to sleep under blankets there at night."

5. Better Rates. Because much of the trade in this district are persons there for their health and feel the effects of extreme temperature more than others, air conditioning carries the strongest possible appeal to them. It makes them feel better, thus they don't mind paying a little more than this district's usual rate for the rooms. Doctors pay a premium for offices in the hotel in that it brings them much additional business just as the doctors bring in additional guests.

Air Conditioned Steamboat 'Round the Bend



"Life on the Mississippi" now includes the pleasures of eating, dancing, or just loafing on the air conditioned decks of this new excursion boat. Special zoning was used to offset sun effect on the glass.

Oil Man Tells How To Market Air Conditioning

BUFFALO—"Carry your air conditioning message in a direct understandable manner to the man in the street—and get your prices down to the point where you can broaden your market."

That advice was given to members of the Air Conditioning Council of western New York by Frank W. Lovejoy, of the Socony-Vacuum Oil Co., who discussed "Air Conditioning and the Layman," at a recent meeting.

Mr. Lovejoy opened his talk with the remark, "I don't know a thing about air conditioning," but when he had finished Council members present agreed that he did know a great deal about merchandising a product.

"Only through hearing the layman's viewpoint can you solve your marketing problems," said Mr. Lovejoy. "Air conditioning is an industry on the verge of going—somewhere. It is not quite clear in the mind of the layman where it is going. And the decision as to where it is going rests with the men in the industry."

Pointing out that the "man on the street" is the most important factor any merchandising program has to deal with, the speaker declared the average layman today is struggling with too much misinformation about air conditioning. "And the industry has set prices too high for a broad market," he added.

Declaring the home owner is the biggest potential market for air conditioning, Mr. Lovejoy said: "I don't see many of you men air conditioning your own homes. Then how can you expect the public to be interested in the idea?"

"Your industry is young," he said. "And your profits are too long for a young industry. You soon will have to narrow these profits because your volume won't carry your overhead. Only as you narrow your profits will you see the industry grow."

BIG RESIDENCE MARKET

Declaring he believes air conditioning has a great future, Mr. Lovejoy said the industry hasn't yet told the true story of air conditioning to the layman. "The man on the street has the idea that it's luxury. You can't build the industry holding the public at arm's length."

"You must realize," he continued, "that markets are minds, not people. It's what the public thinks about an industry that makes its product. The majority of people buy on impression, not on fact. You just be frank. But you can't tell them too much about the engineering phases of air conditioning. They are too technical for public consumption."

Mr. Lovejoy exclaimed: "I don't think the designers of some of your units ever thought about the people that had to use them. They lack merchandising appeal. Why do you think we use red gasoline pumps. Because we like red? No, because you like it."

Color, display, habits of the man in the street—these are the things that must be studied by the air conditioning merchandiser. "Get out of the crying room and tell your story to the public," he urged. "Don't wait for the government to do it."

He closed by reasserting that the air conditioning trade must know the consumer and his wants. "Stop trying to teach the layman the engineering side of air conditioning."

Giant System Cools Excursion Steamer

ST. LOUIS—Return of the Mississippi river "show-boat" to popularity is indicated by the recent launching of the air conditioned excursion steamer which will be operated by the Streckfuss Co. beginning in June of this year.

Air conditioning serving two of the five decks is said to be equal in capacity to that used on the Trans-Atlantic liner Normandie, and of the same type used on ocean-going ships. The system was designed and installed by engineers for Carrier Corp.

The glass enclosed decks of the boat consist of a main deck, or dance floor, and a mezzanine or balcony floor for dining tables. The dance floor is approximately three-quarters of an acre in size, and will accommodate 2,500 dancers.

All machinery used in the installation, including the Carrier centrifugal compressor, is located on the lower or entrance deck of the ship.

The 300-ton air conditioning system is zoned so the equipment will distribute cooled, dehumidified air evenly throughout the decks, despite the direction of the sun on the steamer. Provision for comfort is necessary on both sides because of shifts in the direction of the boat.

Dealer Moves To New Air Cooled Building

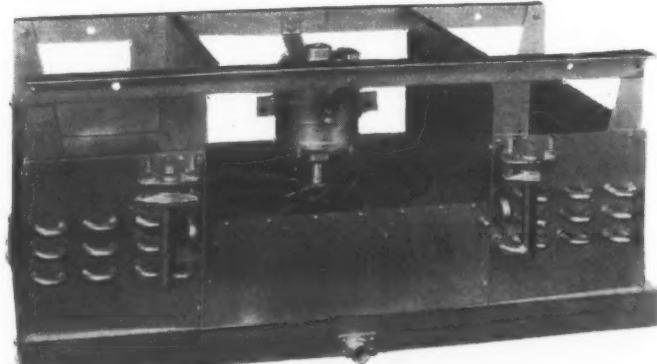
ST. PAUL—Conditioned Air Equipment Co., exclusive General Electric heating, air conditioning, and commercial refrigeration dealer in the Twin Cities and surrounding territory, has moved to new quarters at 2455 University Ave., doubling the size of its old location.

The firm employs 35 people, having added eight since Jan. 1. The new building, 40 by 100 feet, was especially designed to suit the tenant, and is equipped with modern display and conference rooms and offices. Year-around G-E air conditioning has been installed. R. N. Beim and A. T. Millott are partners in the firm.

Anemostat Appoints Field Men In West

NEW YORK CITY—Several recent additions have been made by Anemostat Corp. of America to its field organization. New representatives include:

D. E. McCulley, Omaha, Nebraska and western Iowa; George W. Hummel, Phoenix, covering Arizona; Trane Co., Spokane, S. D. Brown, manager; T. C. Langdon Co., Portland, Ore.; Boyd Engineering Co., Albuquerque, N. M., and El Paso, Tex.; and Robert C. Sweatt, Vancouver, B. C., Canada.



SOLVED

THE PROBLEM OF AIR DISTRIBUTION IN CHILL ROOMS

The DOUBLE QUADROFLO dispenses air laterally in all directions.

Adaptable to single or multiple unit installation

Requires only 17½" of space down from ceiling

May be erected over meat racks thus preventing blast that causes shrinkage and discoloration.

Proper baffling prevents air pocket or short circuiting

Assurance of desired relative humidity not a problem

Completely Fabricated
Tubing Parts

BUNDY TUBING CO. • DETROIT

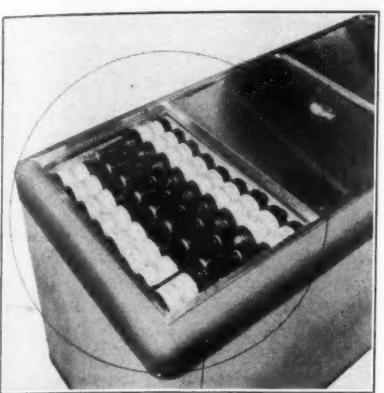
JACKSON ACME INDUSTRIES, INC. MICHIGAN

New 'Colbar' Dry-Type Beverage Cooler Chills Bottled Goods By Conduction

COLUMBUS, Ohio—A new dry beverage cooler known as the Colbar and employing the conduction principle of cooling is being manufactured here by Colbar, Inc., a newly formed company headed by C. F. Munshower, who for the past 12 years has been associated with Bard, Inc., General Electric distributor here, and other distributors of refrigeration equipment.

Debut of the cooler climaxes more than two years of field testing during which 50 units were checked under actual operating conditions in tap rooms, night clubs, restaurants, and carry-outs.

Initial line is comprised of five models: two self-contained units priced at \$395 and \$495 installed, and three models for remote installation ranging in price from \$495 to



Bottle arrangement in "Colbar" cooler, with base of bottle against cooling element. Note full-opening lid.

\$695 installed. Custom built units are available in any desired length.

Bottles are placed in the Colbar on their sides, with the base of each bottle resting flat against a cooling element built into the sides of the cooling compartment, thus making possible conduction cooling. The refrigerated surface exceeds the bottom area of all bottles stored.

To insure constant contact between bottles and refrigerating elements, a patented gravitator or gravity control is placed in the bottom of each compartment. This consists merely of an angular metal base which tilts the bottles slightly against the side-walls. In addition, the gravitator provides an air space at the bottom of each compartment which facilitates supplementary convection cooling.

LARGE COOLING SURFACE

The refrigerated surface formed by these cooling elements exceeds the bottom area of all bottles stored. Cooling elements are filled with a modified eutectic solution balanced at a density which is said to give quick cooling action as well as a long hold-over of refrigeration. It is said that all bottles in every part of the cabinet are kept at a uniform temperature of 34 to 36° F.

A cutout is provided just below the frosting point for the element. By sublimation the frost maintains without defrosting. Refrigerants are said to be active for hours after motor operation ceases. Split hookups

is used so that refrigerant can flow into high temperature compartments, which have just been stocked, without lowering the temperature of the other compartments.

Each compartment is fitted for one, two, or three dividers so that each may instantly be sub-divided into as many as four sections, the smallest of which holds a full case. Standard models vary in size from two to five compartments. Normal capacity of each compartment is 204 bottles arranged in layers of 17 standard 12-oz. bottles each.

The cooler has no fans, no blower, and no moving parts on the low side. The new refrigeration principle is said to make possible the use of lower horsepower compressors. Compressor cycles are claimed to be fewer and longer than in the wet cooler type of cabinet.

VENTILATED HOUSING

In the self-contained units the compressor housing is ventilated by grilles of shelf-X metal on three sides to eliminate any heat trap. One of these grilles is equipped with spring action and a handle for easy access to the compressor mechanism. The housing is built to accommodate practically all makes of compressors.

Cabinets are of "S" lock construction, eliminating screws and bolts. Top moulding is of Armco paint grip and the exterior is heavy-gauge auto body steel. Both are finished with a two-tone green synthetic varnish. Insulation is 2-inch Armstrong corkboard. Inner lining is copper-bearing heavy-gauge galvanized steel.

Lids are of stainless steel. Handles are recessed below the lid surface. Interchangeable action over the entire top surface is made possible by inverted "V" hop-over divider bars. Slides, guides, and crossbars also are of stainless steel.

Patents already have been allowed on three broad claims covering the principle of refrigeration, and the means of effecting cooling by this principle. Other patents are pending.

Lutz & Whyte Named Servel District Mgrs. In Central Territory

EVANSVILLE, Ind.—Joseph K. Lutz and Ray G. Whyte have been named district managers of Servel's electric refrigeration and air conditioning division on distributor and ice cream manufacturer operations. Mr. Lutz will cover the central west territory, and Mr. Whyte the mid-western area.

Mr. Lutz has had more than a decade of experience in the refrigeration business, having previously been with B. H. Spinney Co., Norge distributor in Springfield, Mass. and Albany, N. Y., and prior to that with the Frigidaire organization in eastern Massachusetts.

Mr. Whyte formerly was associated with Appliance Engineering Corp., Boston distributorship.

Super-Cold Increases Coverage In Pacific Northwest Area

LOS ANGELES—Several new commercial refrigeration dealer appointments have been made by Super-Cold Corp. in the Pacific Northwest territory. These include:

N. A. Carr, McCall, Idaho; Dillon Furniture Co., Dillon, Mont.; T. A. Evans, Malad City, Idaho; Goldendale Electric Co., Goldendale, Wash.; Idaho Falls Electric, Idaho Falls, Idaho; E. T. Nolls, Gooding, Idaho; Macks Refrigeration Co., Lewiston, Idaho; Charles Merrill, Astoria, Ore.; Nelson Electric, Buhi, Idaho; Pinson Electric, Preston, Idaho; Fargo-Wilson-Wells, Pocatello, Idaho; George Rivard, Wenatchee, Wash.

Terry Electric Co., Nampa, Idaho; Eastside Electric, Klamath Falls, Ore.; Kalispell Cabinet Co., Kalispell, Mont.; Leichnitz-Johnson Co., Yakima, Wash.; W. F. Larson, Carson, Wash.; Wayne Coker, Bend, Ore.; L. E. Nichels, Boise, Idaho; George B. Moon, Wasco, Ore.; Don Preston, Eugene, Ore.; C. E. Joughin, Libby, Mont.

2-Compartment Display Cases Feature of Huge St. Louis Market Job

ST. LOUIS—What is believed to be one of the largest single installations of refrigerated display equipment has been made in the Hampton Village Super Market.

The market has 18 refrigerated cases built by Hussmann-Ligonier to individual specifications, including a number which have two compartments in a single case, made by inserting a hermetic glass panel. Cases of this type are said to be especially suitable for poultry shops, where eggs must be kept between 32 and 40°, and chicken meats at between 40 and 50°.

All cases are individually operated, and are set weekly by a crew of factory service experts.

Many of the market's 35 stands use three refrigerated cases, each requiring a specific temperature for proper storage of particular types of food products. Boughman-Sanders meat market, one of the largest locations, has three 16-foot cases for pork, beef, and prepared products, and a 24 by 8-foot storage case of stainless all-porcelain construction. In the walls of this case are "cold light" display windows which enable customers to see the stock on hand.

Unusual service plan and the fact that equivalent current is required for all the equipment has enabled the market to effect considerable savings in operating costs.

'Add-A-Unit' Display Cases and Coolers New In C. V. Hill Line For 1940

TRENTON, N. J.—New display case and cooler models for 1940, including "add-a-section" types in both classifications, were introduced to sales representatives of C. V. Hill & Co., Inc. in a one-day convention last month.

More than 300 of the company's salesmen, representing all sections of the country and the Territory of Hawaii, were present at the meeting, which opened with inspection tours of the factory to watch products manufactured, followed with a sales session in which new models were unveiled, and closed with an inspirational banquet at which company officials were speakers.

New Hill products introduced at the meeting included:

- An "Add-a-Unit" steel cooler, which is said to enable the merchant to add sections to his original unit as his business grows. Interior fittings are metal, to make the refrigerator interior sanitary and durable. The new cooler also is equipped with a new type cooling unit, which is claimed to assure more uniform temperatures and better humidities at lower air velocities.

The case was introduced to Hill salesmen as "the most important recent development in the industry."

- An "endless" display case, made up of sections which can be fitted together to form a continuous line-up of any desired length, without wasted space in-between ends. With a case

of this type, it is claimed, the merchant can add on as his needs require by merely purchasing new sections. The case uses a new system of interior lighting which is said to illuminate the display from front to back, without reflections.

- A wide double-duty case, designed for merchants who want a great amount of display area. This case is claimed to provide one-third more display area than the ordinary case.

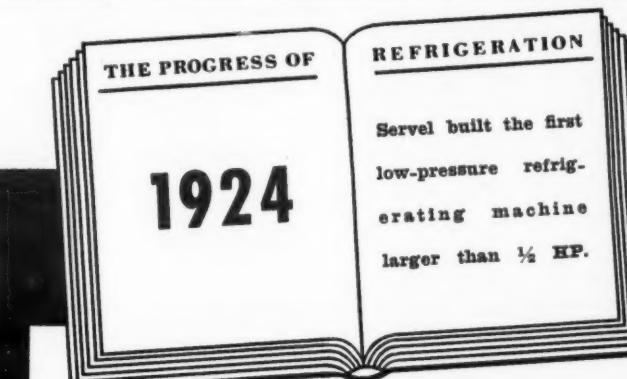
- A dairy and delicatessen display unit, of the slanting front, wall type, designed for either self-service or clerk-service, and equipped with fluorescent lighting, all-metal door frames, and other features.

Kelvinator Carolina Transfer

ATLANTA—Joe Pleasants, formerly South Carolina representative of Carolina Sales Corp., Kelvinator distributor, now has a job with the Kelvinator factory branch here. Badger Johnson has taken Mr. Pleasants' place at Carolina Sales Corp.

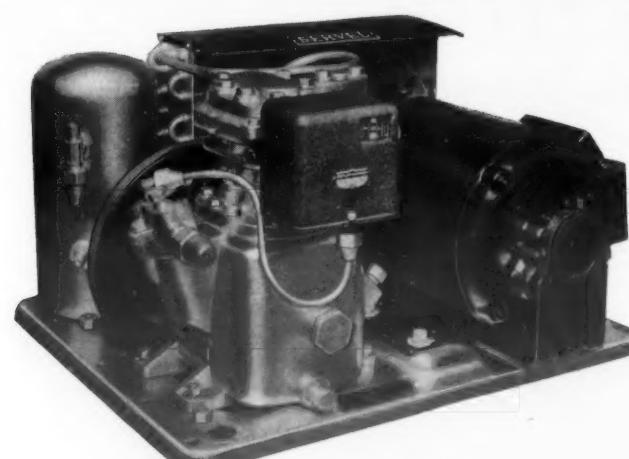
Sells From Service Station

DARLINGTON, S. C.—John S. Kilgo, new Frigidaire dealer here, plans to sell appliances from a showroom in his "Super Service" station.



*There Is No Substitute
For Experience*

Announcing— NEW COMPACT UNITS for SELF-CONTAINED USES



HERE'S welcome news! The latest addition to Servel's famous "Silver Fleet" line is a series of compact refrigerating units designed especially for self-contained applications.

Ranging from $\frac{1}{6}$ HP to $\frac{1}{2}$ HP, these new units are particularly adapted for use with self-contained cases, wall boxes, bottle coolers, milk coolers, ice cream cabinets, frosted food cases, etc.

All of these new units are less than 11" in height, and less than 20" in length. All are twin-cylinder models, carefully balanced and

exceptionally quiet. All are mounted on super-rigid drawn steel bases $\frac{5}{32}$ " in thickness.

Despite their compact design, these new units offer top capacity per HP. They're priced to sell and built to stay sold!

The Servel "Silver Fleet" line also includes four- and eight-cylinder models of all types from $\frac{1}{6}$ HP to 20 HP.

A note on your letterhead will bring further details. Write today to Servel, Inc., Electric Refrigeration and Air Conditioning Division, Evansville, Indiana.

SERVEL

COMMERCIAL REFRIGERATION AND AIR CONDITIONING

BLOWER WHEELS

**HAVE CLARAGE
MAKE THEM!**

Every year we ship to builders of air conditioning units thousands upon thousands of Clarge Blower Wheels and Assemblies.

This smaller equipment is designed with the same skill characteristic of the larger Clarge apparatus—just as carefully fabricated and tested.

And we have sizes to meet ALL REQUIREMENTS—with slow speed operation insuring SILENT PERFORMANCE.

May we have your next inquiry?

CLARAGE FAN COMPANY
KALAMAZOO, MICHIGAN
Sales Offices in All Principal Cities

AIR CONDITIONING & REFRIGERATION NEWS

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MARCH 20, 1940
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Are Times Never Good?

BUSINESS is so good in the refrigeration industry right now that it's too good. No matter whom you visit in this industry today, you hear howls of complaints, and witness the tearing of hair and the gnashing of teeth. And why, pray tell, if business is so good?

Well, about the best answer we can give is that people in this business simply can't find enough buckets and enough arms to catch all the rain of orders pouring down on them.

See a dealer, and you see a man who is peeved. The blamed factory won't ship as many units as he has already sold, and here the season is just getting started. Besides, if he only made as much per box as he used to when he was selling half as many he'd be making twice as much now.

Distributors Caught In Between —But To Their Profit!

See a distributor, and you have to look twice—once as he's coming and again as he is going. He's like the proverbial one-armed paper hanger with the seven-year itch. Over one telephone he's trying to browbeat shipping departments into sending another 10 carloads his way, over another he's trying to convince a dealer that what he really needs is a flock of deluxe eights, rather than more stripped sixes; and at the same time he's carrying on negotiations for a new car.

Sheer Case of Cause & Effect: Values Great—Sales Follow

Drop in on a manufacturing organization and you see men going crazy trying to get more raw materials, more parts, and more labor into the plant, and more units off the production line. At the same time the manufacturers, like the dealers, are crying because they're making less per box, and what a shame, with all this volume.

To us, it looks like a sheer case of cause and effect: the prices are low, the quality is excellent, the values are wonderful—and sales are terrific.

Three interesting developments

of the low-price situation have taken place on the retail front:

Three Special Developments Of Low-Price Situation

(1) Utilities have come back into the merchandising picture with real strength. They are selling, and selling hard. Manufacturers, however, do not consider this development an unmixed blessing. The utilities, it seems, are confining their sales to the \$114 jobs. Not only are they easiest to sell, but because of inferior insulation, they use more current.

(2) Department stores have quit whining and started selling. They have long wanted retail prices which would put them on more even competitive terms with Sears—which has been running department stores ragged in almost every department, and which has been using refrigerators as a price leader to draw shoppers. The department stores are now in that position.

(3) Specialty dealers have dropped everything to sell refrigerators. This leaves radios high and dry; it's tough on washers and small appliances; and above all, it has hurt the sale of electric ranges.

Electric Range Sales Affected By Refrigeration Boom

Following a strong January, electric range sales took a dip in February, unofficial reports show. Sales managers blame the refrigerator prices entirely, saying that they simply can't keep dealers interested in ranges now that the refrigerators are such a bargain.

Figures for January and February indicate that the larger manufacturers are getting the bulk of the business. The mail-order houses have been hit, and so have some of the smaller manufacturers. Private brand business is way down. And the so-called "marginal producers"—no longer having an edge—are said to be "flat on their backs."

Revised Price Schedules Were 'About Due' Anyhow

Executives of these top companies say that the drastically lowered price schedules were "about due," anyhow, because of competitive changes of position, and because of the big business being done by the mail-order houses. In the words of one general sales manager:

"Frank Pierce at Kelvinator was something like the man who shot the Archduke at Serajevo—he merely touched the fuse to a big explosion (the World War) which was ready to go off anyway."

And Now They're Worrying About May & June!

On the part of some sales executives there's a tendency to worry over what will happen to sales in May and June. "Are we shooting the works now?" they wonder. Answer to that one is that even if May and June do not turn out to be the biggest months of the year, January, February, and March totals will be so good that it will still be a great season.

Some of the manufacturers, however, are looking sadly at the enormous expense accounts being run up currently by their touring road shows. These travel-

They'll Do It Every Time . . . By Jimmie Hatlo



1-2-C
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ing dealer conventions work on a long-prearranged schedule, of course, and cannot be called off now.

Nevertheless, they are steaming up dealers at a time when the factories can't catch up with orders which have already arrived. How much better, mourn the executives, if only the road shows could have been sent out in April or May, when dealers may need restimulation.

When Business Is Good, Too Busy To Notice It

It all goes back to our original thesis, and the title of this editorial: "Are Times Never Good?" You know when a depression is in force all right, but you never can pin business men down to an admission that times are good again.

When business does boom, there are so many problems and so many worries in connection with it that it is often all over before anyone realized it was here.

Times are definitely good in the refrigeration business; and anyone who isn't working night and day to get his share may regret it when the season is finished.

QUOTED

'Load Building and Employment Building'

From Electrical World, March 9, 1940

Most consumer sales are dependent upon retailer efforts, and as a result such sales are in proportion to the average consumer purchasing power. For that reason sales are well below the 1929 level. The result is decreased employment in sales and production forces.

Electrical appliance sales, on the other hand, are above those for 1929. Why? Because there is another element in the transaction that is not satisfied to float with the tide of business—the utility. It is true that the larger part of the sales are through the dealer, but that is not the whole story. At least a quarter of the dealers' cash register totals represent sales made by the utility and turned over to the dealer to fill. By far the largest part of local promotion is done by the utility, and besides the utility has an army of outside salespeople drumming up trade.

The utilities have deliberately encouraged the dealers, for their sales help build up the kilowatt-hour consumption. Nevertheless, by so doing

the employment of dealer salespeople has increased. Also, by increasing sales the employment in manufacturing shops increased and the effect was felt way down to the mines.

In other industries promotion falls off when times get bad, but just the reverse is true with utilities. If the utility promotion were to stop for a year dealer sales would dwindle and unemployment would increase.

In 1938, for instance, the only thing that prevented dealers from dying by the scores was the assistance given by utilities in greater promotion and in actual sales turned over to dealers.

We sometimes wonder if appliance manufacturers, when they condemn utilities for wanting this or that, are fully cognizant of where they would be without utility local promotion. Where manufacturers ignore the utility and confidently believe they can get all they want through the dealer, we feel they are ignoring facts.

Likewise the government. The utility is one of the few constructive elements of American industry that is not willing to sit back and wait for conditions to improve. It not only builds employment through appliance sales but, in turn, finds it necessary to spend annually hundreds of millions of dollars to provide for additional plant to take care of the resulting increased load.

Thus the utility load-building efforts are a double-barreled means for putting more men back to work. We should be careful not to harm the goose that lays such golden eggs.

LETTERS

And You Feel Better

Sam F. Graziano
710 E. Henderson Ave.
Tampa, Fla.

Sirs:

Please send manuals SF-1 and SF-2 free with this renewal.

Notice change of address—please to become effective with March 13 issue—as I don't want to miss the News—it's like my weekly bath—not enough but a necessity.

SAM GRAZIANO

Helping Men Get Back To Normal

State of Ohio
London Prison Farm
London, Ohio

Publisher:

Thanks for your kind letter and generous shipment of magazines. We received all the publications in accordance with yours of Feb. 26. The News was issued out immediately, and brought so many requests for the Manuals that we were stumped.

Should you ever have a couple more copies of each of the Manuals, we shall be glad to have them provided, of course, you can spare them.

Naturally, many men are interested in subjects covered by your publications, as it is thoroughly alive and new, and your kindly interest is

helping men on the road back to normal.

Again thanking you, and by the day, don't forget to stop in when you are driving through this section.

CURTIS E. SHIELDS,
Chaplain

By Far the Best Of Its Kind

206 N. Vine St.
Fergus Falls, Minn.

Sirs:

Enclosed you will find \$4 for subscription to AIR CONDITIONING & REFRIGERATION NEWS.

I used to be with Nelson-Otterholm Co., 2486 University Ave., St. Paul, but am now with Hintgen-Karst Electric Co. of this city.

If convenient, you can send several weeks of back issues and date subscription accordingly as I have missed seeing the magazine for some time. As for the magazine, I will say it is by far the best of its kind.

ALBERT W. AUNE

Helpful To Display Case Manufacturers

Albert H. Bromann, Jr.
5001 W. Lake St.
Chicago, Ill.

Editor:

We are enclosing herewith a check for \$4 covering a year's subscription with the AIR CONDITIONING & REFRIGERATION NEWS.

We are manufacturers of commercial refrigerators and display cases and have found that in the past your paper has been of assistance to us.

ALBERT H. BROMANN, JR.

Air Conditioning Sales Program

Baumont & Hohman, Inc.
Advertising
800 Insurance Bldg.
Omaha, Neb.

Editor:

Some time ago you carried a series of articles by William H. Price, Jr., on the subject of sales training and supervision. I will greatly appreciate your wiring me collect in what issues these articles appeared.

O. W. O'NEAL

Answer: The series of articles by Mr. Price ran in the issues of May 24, June 1, and June 8, 1939.

Stainless Steel Cookers For Electric Ranges

H. M. Rehmyer
700-706 West Market St., York, Pa.
Feb. 9, 1940

Sirs:

We understand that cookers for electric ranges are made of stainless steel. Will you advise us who makes same?

H. M. REHMEYER

Answer: One company that makes a stainless steel cooker is the Kewaskum Co. of Kewaskum, Wis. You might also try the Republic Stamping & Enameling Co., Bedford Ave. and Anderson Place, Canton, Ohio.

The Institute Is Open Again



The new General Electric Institute at the G-E appliance and merchandise department's headquarters in Bridgeport, Conn., had a formal opening recently. The new setup is said to embody improvements over the famed Institute and headquarters for home economists at Nela Park, Cleveland.

(Top) Edwina Nolan, director of the Institute, maps out a program in her very modern office.

(Center) Sections of the model

kitchen which form the stage at the Institute slide aside at the press of a button to reveal the large laboratory kitchens onto which the stage opens.

(Bottom) Home economists from far points come to see the Institute's wonders at the grand opening. Left to right: Mrs. Grace M. Coble, Greer, S. C.; Hazel M. Fletcher, Hartford, Conn.; Mrs. O. T. Lawing, Greer, S. C.; Mrs. W. L. Harbaugh, Waynesboro, Pa.

Kelvinator Table-Top Ironer Weighs Only 25 Pounds;

Deluxe 1940 Model Has 2-Speed Arrangement

DETROIT—A new line of electric ironers, featuring a new low-priced portable model, has been announced by Kelvinator.

The line consists of four models: The 89-D, a deluxe cabinet model with porcelain enamel table top; the 69-D, a semi-deluxe model with baked enamel table top; the 59-D, which is similar to the 69-D except that it has no table top, and the 30-D, an all-electric portable model.

Portable model has been designed for low-income families and homes where space is limited. It has a shoe 21 inches in length and 5 inches

in diameter, and weighs approximately 25 lbs. Roll is heavily padded, sag-proof, and free rolling. It incorporates the both open-end features for ease in ironing sheets, tablecloths, and other large pieces.

The shoe is equipped with a thermostat that acts as an "on" and "off" switch for the heating element, and also controls temperatures for best ironing results. Hand lever for controlling operation of the shoe and the roll is located on the right end of the ironer. A pilot light that glows when the current is on is located at the base of the ironer.

*This is the Coat of Arms of THOMAS JEFFERSON
The Symbol of a Man Who Helped Lead His Nation To Independence*

This is the Symbol of UNIVERSAL COOLER CORPORATION Who Helped Sell The Idea of A Legitimate Profit

A legitimate profit to our way of thinking indicates a legitimate responsible business! Oft times so called decreases in profits uncover inferior merchandise, such subterfuge can only result in loss of confidence and sales! Our business is based on rigid quality standards. We cannot afford any compromises and our customers agree with our policy 100%. As suppliers of condensing units, we invite your correspondence!

UNIVERSAL COOLER CORPORATION
DETROIT, MICHIGAN
In Canada: Universal Cooler Company of Canada, Ltd., Brantford, Ontario

Refrigerating A Radio If Necessary



One might suspect that the torrid music of some swing band had so overheated this 1940 Philco auto radio that it had to be cooled off, but it's really a method of demonstrating the capacity of the Philco frozen food compartment.

Joins Distributor Staff

DALLAS, Tex.—J. M. Bowen has been appointed city salesman for Peaslee-Gaulbert Corp. in the refrigeration and radio division.

Artic
(DU PONT METHYL CHLORIDE)

SERVICE NEWS

It's Free! MAIL COUPON TODAY

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REG. U. S. PAT. OFF.

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The R. & H. Chemicals Dept.
Wilmington, Delaware

District Sales Offices: Baltimore, Boston, Charlotte, Chicago, Cleveland, Kansas City, Newark, New York, Philadelphia, Pittsburgh, San Francisco

Please send me the current issue of "ARTIC" Service News and put my name on the mailing list to receive future issues.

Name.....
Company.....
Address..... City..... State.....

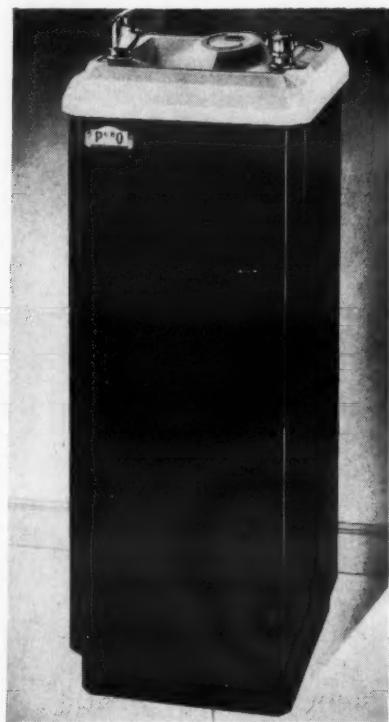
What's New

Descriptions of some of the brand new items for the refrigeration and air conditioning, and major appliance fields.

Puro Water Cooler Has 2-Gal. Capacity

NEW YORK CITY—A new bubbler-type water cooler of 2 gallons per hour capacity with 30° F. temperature drop has been announced by Puro Filter Corp. of America. It is designated as Model NSTB (NTS).

Cabinet of the cooler is of drawn automobile body steel, spot welded, and finish is of baked enamel, with



mahogany the standard color. Top of the unit is of one-piece vitreous china. Bubbler jet is of the non-splash sanitary type, with self-contained automatic pressure regulating device.

Cooling unit is of special design, with large hold-over capacity, and of all hot-tinned brass construction. The unit is of the instantaneous type. Conventional type condensing unit is used, driven by a 1/6-hp. motor. Methyl chloride is the refrigerant.

Oil-treated mineral wool, surrounded by 1½ inches of wood fiber insulation board, is used to insulate the cooler against heat leakage. Dimensions of the cooler are: width 16 inches, depth 15½ inches, height 44½ inches.

'Ozonator' For Use With Air Circulators

The "Ozonator," a small cylindrical ozone generating unit for use in conjunction with circulating fans, air conditioning units, blowers, or similar air distribution equipment, has been announced by Russell Electric Co. of Chicago.

Ozone is a form of concentrated and activated oxygen, and is said to be one of the elements responsible for the exhilarating, invigorating qualities of "fresh" air, especially in higher altitudes.

The Ozonator is 6 inches long and 3¼ inches in diameter. It weighs 3½ pounds and is furnished with an adjustable clamp so that it may be readily attached to the upright member of a circulator fan or fastened to a wall.

The metal housing is chrome plated. A 10-foot rubber cord is supplied, so the unit comes ready to be plugged into any standard 110-volt a.c. circuit. Current consumption is claimed to be less than 10 watts. Capacity is 40 cubic centimeters of ozone per hour.

The unit is best adapted for equipment which permits the ozone to be drawn into the air stream and

thoroughly diffused throughout the area to be treated. This allows time for oxidation of odors and impurities, yet prevents unduly heavy concentrations of the ozone.

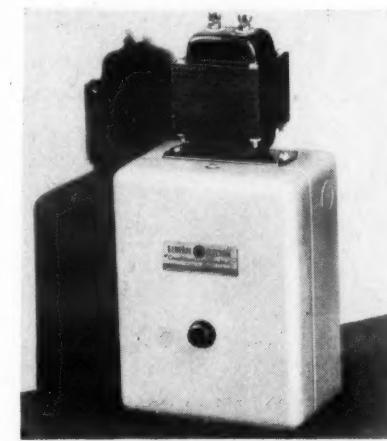
The Ozonator is said to give inside air the same bracing qualities that natural ozone lends to the atmosphere, and as a result is claimed to offer relief from fatigue. It is claimed to be particularly effective as a deodorizer, removing tobacco smoke, cooking odors, and staleness from room air.

G-E Switch Is For Conditioning Control

A new magnetic switch for control of air conditioning equipment motors directly from the contacts of a room thermostat or other low-voltage control instrument has been announced recently by the General Electric Co., Schenectady, N. Y.

This unit, which has application in most situations where it is desirable to control air conditioning equipment motors from a thermostat, consists of a three-pole magnetic switch mechanism, overload relays, and a low-voltage control transformer assembled into one compact unit.

This new magnetic switch and transformer combination protects a motor against overload by means of its manual or automatic reset overload relays, and also, with its low-voltage control terminals on the



outside of the enclosure, assures complete isolation of the pilot circuit from the power wiring.

A normally open interlock is furnished to provide correct sequencing with other equipment when desired. The operating coil is isolated electrically from the power circuit, providing the maximum flexibility for wiring.

Live Center Has Variety of Inserts

A new live center with interchangeable inserts or center pieces for holding centered and uncentered work has been announced by Ideal Commutator Dresser Co., Sycamore, Ill.

Three inserts are available for use interchangeably depending upon the work to be centered: (1) Male insert, for work already centered; (2) Plain female insert, for uncentered work such as armatures, drills, etc.; (3) Female insert with three raised lands for uncentered work having a flat or burred keyway.

The tool is claimed to be adaptable to a wide variety of centered and uncentered work, and all types of machine tools, such as lathes, millers, grinders, hand screw machines, etc.

Booklet on Finishes Issued By Ferro

"The Finish On Your Product," a booklet presenting information on finishes taken from laboratory test data, has recently been published by Ferro Enamel Corp., Cleveland. The booklet presents information on different organic and inorganic product finishes, discussing costs, durability, and use of color, pointing out the features of porcelain enamel.

Feature of the booklet is a chart of the comparative performances of commercial finishes. This chart compares the qualities of porcelain enamel, air-drying lacquers and paints, low-baking lacquers and paints, high-baking enamels, alloys,

galvanized, plated, and chemically treated finishes.

Comparisons of the different finishes are based on use of color, color retention, gloss, corrosion or weather resistance, resistance to chemicals, and physical characteristics. Costs of the finishes also are compared.

Under corrosion, the comparison is broken down to chalking, checking, cracking, fading, rusting, and water-spotting. Chemical resistance covers acids, alkalies, grease, and solvents. Comparison of physical characteristics considers hardness, brittleness, adhesion, flexibility, impact resistance, heat resistance, humidity resistance, water resistance, permanence or durability, method of application, and method of curing.

Linde Publishes Welding Guide

A new booklet, "Sheet Metal Welding Fundamentals," has just been published by The Linde Air Products Co., 30 E. 42nd St., New York City. The booklet covers such subjects as design factors, the control of expansion and contraction, the use of jigs, the weldability of the material, and the welding procedure. It should be of interest to fabricators of light-gauge metal, whether sheet metal or light-wall tubing.

Also included in the booklet is a supplementary outline for teaching the welding of sheet metal and tubing. Recommended as a brief, to-the-point aid for instructors in welding schools and colleges, the outline contains suggestions for lectures, demonstrations, shop work, and study references for 30 lessons.

Copies of this 16-page booklet (Form 4435) are available upon request.

Hood Protects Against Dust, Fumes

Protection of workmen against silicosis and other occupational diseases caused by inhalation of dust or fumes is offered by a new hood introduced by Jackson Electrode Holder Co., Detroit.

The hood is of black, tailored, rubberized fabric, fitting the shoulders snugly. Fiber headgear has extra wide sweatband and is equipped with curved air tube having 24 vents. Tube does not touch the



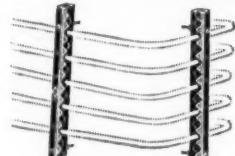
brow but conforms to its curvature.

Light, flexible, fabric-bound hose clipped to operator's belt and equipped with detachable fitting serves to connect with plant airline.

Clear vision, plus eye and face protection, is afforded by a 6½ x 9¾-inch Plastacele window.

Coil Spacer For Liquid Cooling Jobs

A new type of coil spacer and support, for use when making up evaporator coils for beverage and



milk coolers, etc., has been announced by Imperial Brass, Chicago.

The spacer is 25 inches long and can be adjusted in spacings of 1-inch multiples. It can be cut with a hack saw if a shorter length is desired. The spacer is suitable for use with tubing from ½ to ¾ inch o.d. It is listed as No. 225-C and sells for \$2.85.

SOFTNESS

You get it in WOLVERINE TUBING

WOLVERINE TUBE CO., DETROIT

SENSATIONAL NEW HAVADRINK

COIN VENDING COOLER

Novel 2-sided design—glass doors both sides—dispenses 2 flavors—in actually 2 coolers in one. Increases sales 25% or more in same location. Dry refrigeration. Sensation of Chicago Show.

WRITE FOR PRICES AND DESCRIPTIVE LITERATURE
PORTABLE ELEVATOR MFG. CO., BLOOMINGTON, ILL.



"YES SIR . . . IT'S A SUPERIOR ECONOMIZER!"

It will increase the overall capacity, and reduce the running time of your commercial job AS MUCH AS 20%.

ECONOMIZERS prevent sweating and frosting of suction lines—save compressor repairs caused by oil slugging—provide for active use of 100% of evaporator surface and bring "on-the-line" jobs within the normal cycle range.

A profit-sharing investment for the merchant—a money-maker for refrigeration men! Write for Bulletin R7—it contains valuable information on Heat Exchangers.

Sold by leading jobbers everywhere

SUPERIOR VALVE & FITTINGS COMPANY

1509 West Liberty Ave. • Pittsburgh, Penna.

Export Department: 100 Varick Street, New York, N. Y.

MUELLER BRASS CO. Improved HEAT EXCHANGER

Compact and Efficient For Ice Cream Cabinet Installation

The Heat Exchanger illustrated below is an addition to our line and intended for use in ice cream cabinet work and in similar installations where a small, compact, yet very efficient heat exchanger is required. Note that overall length is only 8½".

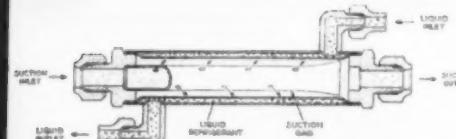
It is designed to provide maximum heat exchanging capacity where available space is at a premium. Special combinations of inlet and outlet fittings can be furnished so that this compact unit can be adapted to your particular requirements.

Catalog Suction Liquid Overall Heat Transfer
No. Line Line Length Area

A-13730 ½" Flare ¼" Flare 8½" 18 Sq. In.

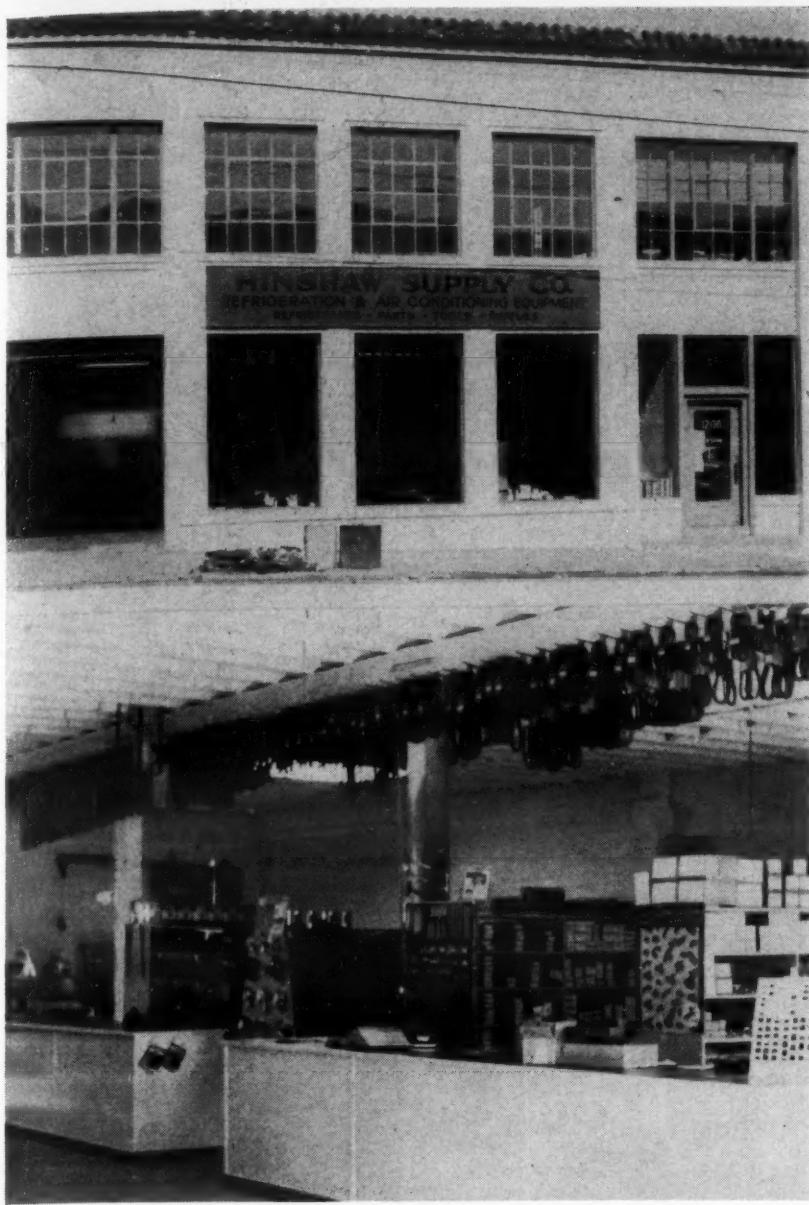
Flare Nuts and Seals are furnished with Exchanger, thus

keeping units dry and clean.



MUELLER BRASS CO.
PORT HURON, MICH.

A 'Drive-In' Parts Depot



The Hinshaw Supply Co., refrigeration parts jobber, recently opened a new store in San Francisco. The company believes that it is the only jobber establishment in the country with a "drive-in" entrance for customers who come by auto. Above shows how the front of the store is arranged for the "drive-in" feature. (Bottom) Interior of the store, showing the clever arrangement that makes all the company's stock of refrigeration and air conditioning parts visible.

N.J. Firm's Supplies Dept. Takes New Quarters

CAMDEN, N. J.—Wholesale electrical supplies division of Borstein Electric Co. has been moved from the firm's retail store at Broadway, and Mickle St. to larger quarters at the corner of Fifth and Pine Sts.

The firm's wholesale division has now combined offices, service store, and warehouse under one roof. Meyer Borstein is division manager.

Capital Distributorship Enlarges Sales Staff

WASHINGTON, D. C.—Jack Reynolds and Frank Harris have been appointed to the sales staff of Washington Refrigeration Co., Gibson and Farnsworth distributor here.

Mr. Reynolds formerly had been associated with Doubleday-Hill Electric Co., Southern Wholesalers, Inc., Shapiro Distributors, Inc., and other local appliance distributors.

Mr. Harris formerly operated a retail appliance store here.

MASTERCRAFT
ADJUSTABLE
PAD
and
CARRYING
HARNESS

NAME OF
REFRIGERATOR

Efficient, sturdy and economical. Provides safer handling and thorough protection of refrigerators. Pad and harness are separate units and both adjustable to practically all styles and sizes of cabinets.

Adjustable Pad \$3.75 each
Adjustable Harness \$6.25 each
f.o.b. Chicago.

Lettering on pad at only \$1.00 per order extra.
Write for latest folder and prices on pads for refrigerators, washers, ironers, ranges, radios, etc.

BEARSE MANUFACTURING COMPANY
INCORPORATED 1911
3815-3825 Cortland Street, Chicago, Illinois

Sid Harvey, Inc. To Open Long Island City Branch

VALLEY STREAM, N. Y.—Sid Harvey, Inc., refrigeration jobber with headquarters at Valley Stream, N. Y., has announced plans to open a fifth branch at Long Island City, N. Y. about April 1.

The new branch store will be located at 32-01 Greenpoint Ave. and will carry a full line of refrigeration and oil burner parts and supplies. Location of the new branch will be convenient to the firm's customers in the Williamsburg section of Brooklyn and the Corona section of Queens, as well as the Long Island City area. The branch will be in charge of Matty Bernard, formerly assistant manager of the firm's Jamaica store. In addition to the Valley Stream headquarters, the firm now has stores at Hempstead, Bay Shore, and Jamaica.

Superior Outgrows Plant, Moves To Larger One

PITTSBURGH—Having literally outgrown its present factory and office facilities, and looking toward increased business in 1940, Superior Valve & Fittings Co. is moving from its old address at 500 37th St. to new and larger quarters at 1509 West Liberty Ave.

The new building has two stories and 15,000 sq. ft. of floor space. Production, assembling, and testing equipment all will be located on the second floor. Stockroom and offices will be located on the first floor. Receiving and shipping entrance, as well as the office entrance, will be on West Liberty Ave.

The increased floor space will make possible the installation of much needed additional production equipment and permit a general expansion of production facilities.

Opens Branch Store

PAMPLICO, S. C.—H. E. Carter, who took on the Kelvinator line in Johnsonville, S. C. last year, has opened a branch store here.

'Store on Wheels' Builds Parts Business Over Wide Area For Western Michigan Jobber

By Henry Knowlton

GRAND RAPIDS, Mich.—"Go to the customer and the customer will come to you"—is the formula used by B. F. Harris & Son, refrigeration supply jobber who recently moved its Holland, Mich. store to a new location here. Since Mr. Harris started in the jobbing business about ten months ago he has been distributing refrigeration supplies from a "store on wheels" throughout western Michigan, from Charlevoix to the Indiana line.

After 20 years' experience as a refrigeration service man in Holland, Mr. Harris gave up his own lucrative service business to become a refrigeration supply jobber. Realizing that the "trade" in western Michigan is scattered throughout many cities and towns, Mr. Harris equipped a 1-ton Ford truck with bins, shelving, belt hangers, and compartments for holding bottled gas. Everything the refrigeration service man needs, except coils and compressors, is carried in stock on this truck.

REGULAR ROUTES

From Monday morning until Friday night Mr. Harris is on the road, calling on service men and refrigeration concerns located in the western half of the state. The territory has been divided into three "runs" which are alternated from week to week; one north to Cadillac, Traverse City, Petoskey, and Charlevoix; one south to Niles, Dowagiac,

Kalamazoo, and other southern Michigan towns, and one central, which includes the territory in the immediate vicinity of Grand Rapids, Holland, Greenville, and Ionia. On his "southern" run Mr. Harris calls on approximately 150 accounts in five days.

Merchandise sold "off the truck" does not carry the cash discount of 2% which is given on goods purchased at the store, or ordered by mail. The 2% is allowed on mail and pick-up orders only if paid for on the "next call of the truck." Thus Mr. Harris sells merchandise, delivers it, and at the same time handles collections.

In spite of the fact that no coils, or high sides are carried on the truck, the company makes a policy of selling all of this equipment possible. According to Les Pool, who acts as store manager in the absence of Mr. Harris, if the jobber can get the coil, compressor, and valve business, the rest of it will come automatically.

Compressors, coils, and other heavy equipment is sold by Mr. Harris from catalogs when he is "out on a run." His policy is to make frequent contacts with all the trade in the area covered, and in this way be on hand when there is business available.

That the "store on wheels" method of distributing refrigeration supplies has been successful is indicated by the fact that Mr. Harris expects to

start a second truck on the road April 1. This truck will be operated by a son, Clarence Harris, who is learning the jobbing business.

The Harris organization is something of a family affair. All accounting in the Grand Rapids store is handled by Mr. Harris' daughter, Ilah Harris Pool, and the store is managed by her husband, Les Pool. Thomas Olinger, formerly an executive of Hart & Cooley at Holland, Mich., is in charge of stock.

The new home of B. F. Harris & Son is located on a principal street in the south end of Grand Rapids. While it is not close to the downtown business district of the city, the location permits ample parking facilities. The location was chosen in the belief that the customer would rather drive a few blocks farther and be able to park his car, than to find it necessary to walk several blocks after parking in the congested area of the city.

SPECIAL PARTS BINS

The store is being equipped with special shelving which permits the storage of different types of refrigeration parts in sections by themselves. The shelving, which runs crossways of the store, has bins on both the front and back.

The basement of the new establishment is being equipped for dehydrating compressors and a new Imperial charging unit, for the transfer of refrigerants, is being installed.

The company handles Peerless valves, American Injector valves, Ranco cold controls, Dayton belts, Bonney tools, Texaco oils, Anaconda tubing, National Ammonia gases, Zenith filters, and other products essential to the refrigeration trade.

When prospects say:



-here's YOUR answer!

"The Hall Kumfort Kooler costs about $\frac{1}{5}$ as much, does the job because it is engineered for businesses just like yours"

YOU know from experience, for hundreds of business establishments, the usual cooling system investment is too high for many customers. But, the Hall Commercial Kumfort Kooler is IN LINE, is A UNIT which restaurants, retail establishments, beauty parlors, mortuaries, theatres, and many others CAN ALL AFFORD.

Why is this equipment so much lower in price? Chiefly because it is engineered on the evaporative principle, therefore most economical from the manufacturing, installation and operation standpoint.

But you ask, "Does it do the work?" The answer to that is "experience"—experience attested to by hundreds of satisfied users whose letters are on file.

Dealer Franchises Open, but hurry!

The Hall Commercial Kumfort Kooler opens up new profit-possibilities because it is designed for places where more expensive installations could not be sold. It is easy to install, gives satisfaction, builds other prospects for you. Every sale means a good profit, and an extra profit. Write us today for prospectus and complete details.

A few reasons why **HALL** Commercial **KUMFORT KOOLER** is easy to sell . . .

1. It costs about one-fifth as much (or less).
2. Operating costs are extremely low.
3. Cools to proper comfort point—8 to 12 degrees below outdoors. "Effective" temperature even lower.
4. Greater employee efficiency results because it uses 100% fresh, cooled and filtered air—eliminates three o'clock headaches.

5. Dust, dirt and odors are effectively eliminated.
6. Roto-Atomizer insures even saturation, essential to an effective job of air cleaning and comfort conditioning.
7. Cooling commences the moment the unit is turned on—no long precooling period is necessary.

NOTE: Factory engineering service is available for analysis of installation data and plans—additional assurance of customer satisfaction.

HALL MANUFACTURING CO.
Cedar Rapids, Iowa

LETTERS ABOUT SERVICE PROBLEMS

Seeks Information on Grunow Type 'K' Unit

105 W. New St.
Coffeyville, Kansas

Editor:

I would like service information on the Grunow electric refrigerator model 60 S, type K unit, 110 volts, 60 cycles, 210 watts. Refrigerant carrene, charge 2.75 lbs.

Please advise me if you can supply information wanted, and also the charges on the same.

S. L. SCHILLE

Answer: A series of articles on the servicing of Grunow household electric refrigerators, consisting of five articles in all, started in the Sept. 20, 1939 issue of AIR CONDITIONING & REFRIGERATION News, and ran for five consecutive weeks. Copies of the issues containing this series are available at a cost of 20 cents per issue, or \$1.00 for the entire series.

'Frigid-Eye' Refrigeration Service Analyzer

P. O. Box 54, Jefferson, Wis.

Editor:

Find enclosed \$2.00 for which please send me Manual No. S-1.

Second, I would like some information concerning the "Frigid-Eye" service analyzer designed and constructed by S. A. Hemmerly. Has it



As the Heart of Good Crankshaft Seals



The Syphon Bellows is the most effective, most durable crankshaft seal. Many manufacturers of refrigerators and condenser units have proved this... for years have been consistent users of Syphon Bellows Assemblies for seal joints.

No device could have earned such wide acceptance among leading manufacturers if it were not for genuine evidence that Syphon Bellows assure long and trouble-free life in the mechanisms in which they are used... keep their products sold and minimize service problems.

Investigate. Use the engineering services we offer, freely, for the solution of specific problems. Ask for Bulletin FO-511.

THE FULTON SYLPHON CO.
KNOXVILLE, TENNESSEE
Representatives in All Principal Cities in U. S. A.
and in Montreal, Canada and London, England

been put on the market, and where could one be purchased?

NORMAN E. STEINKE

Answer: Articles describing the construction and operation of the "Frigid-Eye" were published in the Oct. 11, 1939 and Jan. 10, 1940 issues of AIR CONDITIONING & REFRIGERATION News. We have no further information concerning the "Frigid-Eye" service analyzer at this time. Write to S. A. Hemmerly, Scranton-Norge Co., Scranton, Pa., inventor of the device.

Societies & Associations For Refrigeration Men

431 North Ave. B.
Canton, Ill.

Sirs:

Can you advise me where I can get in touch with the Refrigeration Service Engineer or some society that would be of benefit to a refrigeration service man?

I work by myself and I am busy all the time, so I don't get around much. I have been doing refrigeration service work for three years, electrical work of all kinds for the last 15 years. I find something new every day.

Would also like to get some good periodicals on maintenance and service.

SAM SPEER

Answer: Regarding an engineering society, there is the Refrigeration Service Engineers' Society, with headquarters at 433 N. Waller Ave., Chicago, Ill. Write to H. T. McDermott, national secretary. This society has local chapters in a number of cities and the secretary will give you information regarding the one nearest to you.

If you have had considerable refrigeration experience, perhaps you would like to join the American Society of Refrigerating Engineers. This professional group includes the engineers connected with the large manufacturing companies and, of course, membership in this society carries some distinction.

The A.S.R.E. has local sections in the larger cities. Both of these organizations issue monthly magazines for the members.

Regarding books on installation and service, we believe that there is nothing

better for the practical service man than the Manuals which we have published as a by-product of AIR CONDITIONING & REFRIGERATION News. These books are offered at a popular price (most of them are \$1.00 per copy) and you can buy them in sets or one at a time. Most of the leading refrigeration supply jobbers carry these books in stock, or you can order direct from us.

Manufacturers of Refrigerator Dishes

Rocco Galgano
Torrington, Conn.

Editor:

Will you kindly send me the names of the companies who manufacture refrigerator dish sets?

ROCCO GALGANO CO.

Answer: The 1940 Refrigeration & Air Conditioning Directory lists manufacturers of refrigerator dishes.

The new Directory, just off the press, is the buyer's guide of the industry, and gives classified listings of refrigeration and air conditioning products. It sells for \$1.00.

Ultra-Violet Lamp Data Is Available

Ft. Wayne, Ind.

Sirs:

I sent to the Refrigeration & Air Conditioning Institute an article regarding the ultra-violet treatment of meat to prevent spoilage and requested further information. I am told that you are now publishing a series of articles on that subject.

Would you please send the series to me as I am interested in such, being a student of refrigeration and air conditioning. Let me know if there is any charge. Thank you very much.

WILLIAM A. VOKE

Answer: We published a series of three articles by T. R. Porter of the Special Products Dept., Lamp Division, Westinghouse Electric & Mfg. Co., on the application of the Sterilamp. These articles ran in the Nov. 17, Nov. 29, and Dec. 6, 1939 issues of AIR CONDITIONING & REFRIGERATION News, which are available at a cost of 20 cents each.

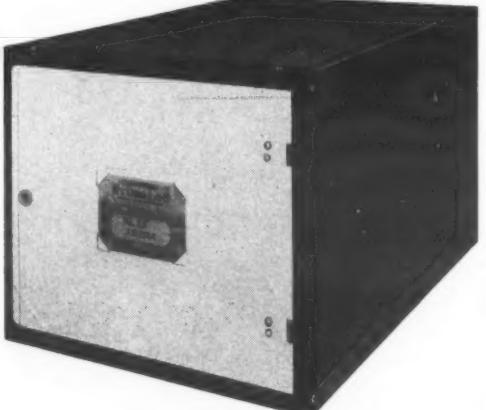
Food Storage Lockers Our Sole Business

THE efforts of our entire organization and the facilities of our manufacturing plant are devoted exclusively to the manufacture, research and development of lockers for food storage plants.

We feel that we can best serve the interests of this industry by confining all our efforts to it.

The recent developments made by Master is conclusive proof that there is no more true saying than the old adage — "Shoemaker stick to your last."

The locker industry has looked to Master for new developments and we have not failed them. Witness the marketing 20 months ago of a new individual locker the



Masterbuilt HyDroLoc

Here is a locker that sets a new standard in sanitation... protection against odors, dehydration, etc... flexibility of installation... construction... savings in erection costs, etc.

Distributors—You Need This Locker

HyDroLoc Individual Lockers pave the way for additional profits when you sell the refrigeration or insulation. Write for full information.

Masterbuilt Lockers are endorsed by and sold only thru distributors of refrigeration and insulation.

MASTER REFRIGERATED LOCKER SYSTEMS, Inc.
121 Main St. Sioux City, Iowa

Over 125,000 Masterbuilt Lockers in Use

E. F. Wilkes & Co. Pty. Ltd.
124 Castleleigh St.
Sydney, N. S. W., Australia

Sirs:

As we are the sole distributors of Westinghouse refrigerators in New South Wales and Westinghouse Sterilamps in the Commonwealth, we are very interested in two articles on the use of Sterilamps, appearing in your Nov. 22 and Nov. 29, 1939 issues of AIR CONDITIONING & REFRIGERATION News.

We would appreciate three extra copies of each article and enclose herewith money order for 6/- to cover the cost. Should this not be sufficient remuneration would you kindly advise us and the deficiency will be attended to by return post.

Wishing your Journal every success in the New Year.

A. D. CAVENAGH,
Technical Engineer

parts of this series that might have been published.

If you can, without too much trouble, we would greatly appreciate your letting us know the issues and page numbers in which Part 1 and any other parts of this series were published.

WILLIAM GOODMAN

Answer: The articles by Mr. Cathcart appeared in the Oct. 18 and Oct. 25, and Nov. 1, 1939 issues of AIR CONDITIONING & REFRIGERATION NEWS.

Servel Electric Data In Manual No. 4

4133-4th St.
La Mesa, Calif.

Editor:

As I happen to be a student of the International Correspondence Schools, they referred me to your company for information on the Servel electric ice boxes. The boxes are about eight years old and as I work for the government at the Naval Air Station, San Diego, we have around 150 different ice machines to look after all the way from 5 hp. to $\frac{1}{4}$ hp.

These Servels are all the time burning out and the motors show an overload of about 400%. We can't seem to get anywhere in making repairs and, of course, the boxes do not get back on the line. I'm attempting to do what others say is not possible. That is correct the mistake and find out what is wrong.

The school wrote me and said you people are the one to get the right answer. If there are any catalogs or information you can send me, I'll be very thankful. Also any charge at a normal rate I'd be willing to pay to gain that information.

The boxes are as follows:
Compressor is hermetically sealed
SB-7, 720 B.t.u., 8.8 cu. ft.
1 lb. or 2 lbs. methyl chloride
 $\frac{1}{2}$ pts. of oil
 $\frac{1}{8}$ hp., 100 volts
Single phase a.c. motor, 2.38 amp.,
60 cycles

G. E. MATHENY

Answer: Manual No. 4 of the Master Service Manuals on Household Refrigeration gives complete information on servicing Servel units, with drawings and instructions for service methods. It is available at a cost of \$1.00.

York-Allis Chalmers 'Package' Cooling

Chinworth's
Warsaw, Ind.

Editor:

Your publication of Feb. 14 carries an article about the 1940 line of York-Allis Chalmers commercial refrigeration packages.

We are very anxious to learn the name and address of the manufacturer of this product and also the name of the nearest distributor in our territory.

G. W. BRYAN

Answer: The York-Allis Chalmers unit is manufactured by the York Ice Machinery Corp., York, Pa. If you will write to them immediately they will put you in touch right away with their nearest distributor.

Odor Canisters

Webber & Douglas
168 Main St. East.
Hamilton, Ont.

Editor:

Would you please give us the names of firms handling canister type filters for eliminating odors in air conditioning work.

G. M. WEBBER

Answer: Betz Mfg. Co., Hammond, Ind., and the Dorex Division of W. B. Connor Engineering Corp., 114 E. 32nd St., New York City.

FOR Better Coolers

New catalog shows our improved line of Direct Draw, Dry Kool Beverage Coolers, Walk-In Coolers and other refrigeration equipment. Dealers and distributors write to Desk 40 for catalog and particulars.

UNITED REFRIGERATOR MFG., INC.
1380 UNIVERSITY AVENUE
ST. PAUL, MINNESOTA

United
ST. PAUL



Sell PACKAGED AIR CONDITIONING



DEALERS: Get the facts about the GR-Lipman line of complete, "packaged" Air Conditioning Equipment... portable, self-contained units for year-round air filtration and ventilation; summer cooling and dehumidification. An unlimited market; an outstanding line. Write:

GENERAL REFRIGERATION CORPORATION
Dept. AC-2
Beloit, Wis., U. S. A.



Wrappers For Locker-Stored Meat Are Analyzed By Govt. Chemist

By M. Heinig, Junior Chemist, Forest Products Laboratory, Forest Service, U. S. Department of Agriculture

The conditions which any material used for wrapping meat for locker storage must meet and the requirements of its use are indicated by following it through a cold storage plant to the final unwrapping operation.

The first condition such a material is required to meet is the wrapping operation. This is usually done in the cutting room, which is at about normal temperature, while the meat is at a temperature of about 34 to 38° F.

Then the package goes to the sharp freezer at about -10° F. where it may stay several hours, and thence to storage at about 10° F. for as long as three or four months or more.

After storage the package is usually taken some distance to a point where it is unwrapped and is frequently subjected in the meantime to relatively high temperatures.

Among the several sheet properties required to satisfy these conditions of use are:

1. Stripping quality
2. Strength and flexibility
3. Resistance to penetration of liquids
4. Resistance to vapor transmission
5. Resistance to air passage
6. Purity
7. Cost

By stripping quality is meant the ability of the paper to be removed from the meat while still in a more or less frozen condition without sticking or pulling apart.

PURITY DESIRABLE

The wrapping should be pure and free of taste or odor-imparting substances. This is especially important where fatty material contacts with it, since fats absorb odors and easily acquire an off-flavor. Many foreign materials that might be present in cheap papers would have no harmful effect, e.g. bark, resinous and brown-colored specks, shives, and rust spots, although making the paper unattractive in appearance.

Common market papers or butchers' wrappers are designed for short time use only and it would not be expected that they would have the properties required for locker papers.

If soaked or impregnated with wax, such as paraffin, dry waxed or impregnated papers become materially better. The water, air, and vapor-proofness of such papers all are improved, depending, of course, on the amount of impregnation. By impregnation is meant dipping the sheet of paper into a bath of melted wax, the fibers soaking up the liquid much as a blotter does ink. These sheets are called dry waxed.

WET WAXED SHEETS

Wet waxed sheets, or self-sealing sheets as they are called in the case of bread wrapper, are not only soaked with wax but carry an excess on the surface in the form of a non-porous or continuous coating. This improves air, water, and vapor-proofness over the dry waxed sheets. Their vapor resistance is especially improved.

It is only necessary to have the wax coating on one side. In fact, it is advantageous to leave one side (the outside) relatively free of wax for printing or writing. It is advisable, furthermore, to put the waxed side toward the meat from the point of view of water resistance, discoloration, and stripping quality.

Waxed papers are not grease-

proof, however, although this factor may not be so important as some of the other properties.

Quoting from a paper presented by G. F. Des Autels of Kalamazoo Vegetable Parchment Co. at a locker conference at the University of Illinois, "Oiled papers have been tried. The oil keeps the paper from sticking and from too readily showing stains from meat juices. The oil adds just a little to the wet strength or waterproofness but such papers are not at all air-proof and moisture-proof so they do not give the necessary protection against freezer burn, dehydration, etc."

Vegetable parchment, called also "parchment," is made by treating unsized paper with strong sulphuric acid. It is strong, tough, and translucent, and has high strength while wet. Water penetrates into it more slowly than into an ordinary butchers' paper but it might give trouble in stripping unless waxed. Its grease resistance is good and is commonly used for wrapping greasy foods. Its vapor resistance, however, is poor—in fact, not materially better than ordinary butchers' papers.

IMITATION PARCHMENT

Imitation parchment or grease-proof wrapping is made from sulphite pulp and is made grease-proof by a mechanical treatment called beating. It resembles genuine parchment in strength and translucency but does not retain its strength when wet as does parchment. It is used for wrapping greasy foods and is the base from which glassine is made. Its water resistance is less than that of parchment. The vapor resistance is poor.

Glassine is the same as the grease-proof wrapping except that it is made from a more highly beaten pulp. The strength is rather poor, especially the tearing strength. The water and grease resistance are better than the grease-proof. The vapor resistance is poor.

Cellophane is the trade name for a cellulose sheet made by a special process. It is sold as plain and as moisture-proof cellophane, the properties of which are quite different especially in regard to the behavior toward water or water vapor. The moisture-proof coat consists of a film of a wax-lacquer combination.

TRANSPARENCY AN ASSET

The moisture-proof grade has good vapor resistance and would be the grade to be preferred for locker use. It has high water and grease resistance and so the stripping quality should be good. Its strength is not especially good, particularly tearing. Its transparency is an asset, in that it simplifies the task of selecting the right package to take from the locker for use. Its air resistance is good.

There is available a rubber film which closely resembles cellophane in appearance and probably would be similar to moisture-proof cellophane in regard to vapor, air, and water resistance and stripping quality.

Lacquer-coated papers constitute a large field which may offer possibilities. These papers have a surface film which is flexible at ordinary temperatures, tack-free, dense, and strong. These coatings are of cellulose nitrate or other cellulose derivatives and can be made with certain resins for grease and water resistance. Lacquer films that are highly resistant to vapor passage are made by adding a small per cent of paraffin or other waxes.

DEALERS! Cash in on popularity OF A-S-E Froz-n-Food Lockers

The popularity of A-S-E Froz-n-Food Lockers is increasing daily. Take advantage of the unusual sales opportunity they offer now. Dealers in many parts of the country are adding to their income easily and quickly.

There is an A-S-E Froz-n-Food Locker for every refrigerated locker plant requirement. Installation is easy, quick—there is no unprofitable servicing.

Sell Unit Lockers for immediate needs—make additional profits on repeat orders. Write for full information on this quick way to profits.

ALL-STEEL-EQUIP COMPANY

Incorporated

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Aurora, Ill.

Air Is Circulated on All Sides of Cold Rooms In Newest Plant of Oregon Locker Chain

MILWAUKEE, Ore.—Air circulation on all sides of the cold rooms, and a machine room located on an enclosed balcony are the standout features of the latest locker storage plant built by John D. Trullinger, vice president of Portland Seed Co., Portland, Ore.

Mr. Trullinger operates other locker plants in Portland, Yamhill, and Multnomah, Ore., and plans to soon open another at Amity, Ore. Some 2,000 lockers are now in use in these plants.

The Milwaukee plant is housed in a new \$35,000 one-story building measuring 70 x 105 feet over all and containing, in addition to the locker plant, a meat market, grocery store, and bakery.

SHOP SPACE RENTED

Mr. Trullinger rents out the grocery and bakery space. The meat market and locker plant are operated by Ralph E. Cooper, veteran meat dealer.

The locker plant was designed by Al Freeman, Mark A. Postlewaite, and G. C. Shapley of the Western Engineering Co., which supplied the Carrier equipment used throughout. Layout of the plant consists of a processing room, pre-cooling and meat storage room, quick-freeze room, a locker room, and an air-lock anteroom which serves as an entrance to the locker room.

Insulation of the cold rooms was designed to provide complete circulation of air around and over and under each room. There is a 3 to 5-foot air space between the ceiling of each room and the roof of the building. Outside insulation of these rooms consists of granulated cork filling in the walls.

SPECIAL FLOOR CONSTRUCTION

The floors, beginning with the lowest layer, consist of 4 inches of concrete, a layer of hollow tile topped with $\frac{1}{2}$ inch of concrete plaster, a sealer coat of hot asphaltum, 6 inches of cork laid in two 3-inch layers, and 3 inches of reinforced concrete.

The hollow tile provides complete circulation under the cold rooms and eliminates all possibility of freezing ground throwing the building off level. The course of air circulation is as follows: air is drawn into the building by low roof ventilators,

passes down the air space in one wall, through the hollow tile in the floor, up the air space in the opposite wall, and out the higher roof vent.

Due to space limitations, the machine room was placed on an enclosed balcony reached by a stairway from the processing room. There are two Carrier compressors in this room. The larger, a model 7F6 4-cylinder unit, connects with the locker room and quick-freeze room. It is operated by a $\frac{1}{2}$ -hp. motor, but will take a 10-hp. motor if necessary.

The smaller compressor is a model 7F3 2-cylinder machine powered by a 2-hp. motor. It refrigerates the chill room and the air-lock anteroom.

Both units are fitted with vibration eliminators on the lines, and both are mounted on cork to minimize noise. An evaporative condenser is used for both machines.

All cold room doors can be opened from either side. Lights in these rooms have marine-type moisture-proof fixtures.

In the 5 x 4 x 10-foot quick-freeze room, which is kept at -15° F., is a type 15K5 vertical draft type Carrier cold diffuser. Specifications

called for a freezer capable of freezing 350 pounds of produce in four hours.

The 12 x 25 x 10-foot meat storage and pre-cooling room contains a ceiling-mounted type 15K5 cold diffuser. This room is kept at 34 to 36° F. with 87% humidity. Specifications called for a unit capable of cooling 650 pounds of meat from 85 to 35° F. in four hours. A meat track runs from this pre-cooling room through the processing room, behind the meat market, and down to a small delivery door at the front of the building.

520 LOCKERS NOW

The locker room now holds 520 "Sanilok" all-sheet-metal lockers of both drawer and door type, but space is available for a total of 825 lockers. A type Q Carrier cold diffuser holds the locker room at a temperature of 6 to 7° F. This system is set to cut in at 8° F. and out at 5° F. Humidity is maintained at 70 to 75%.

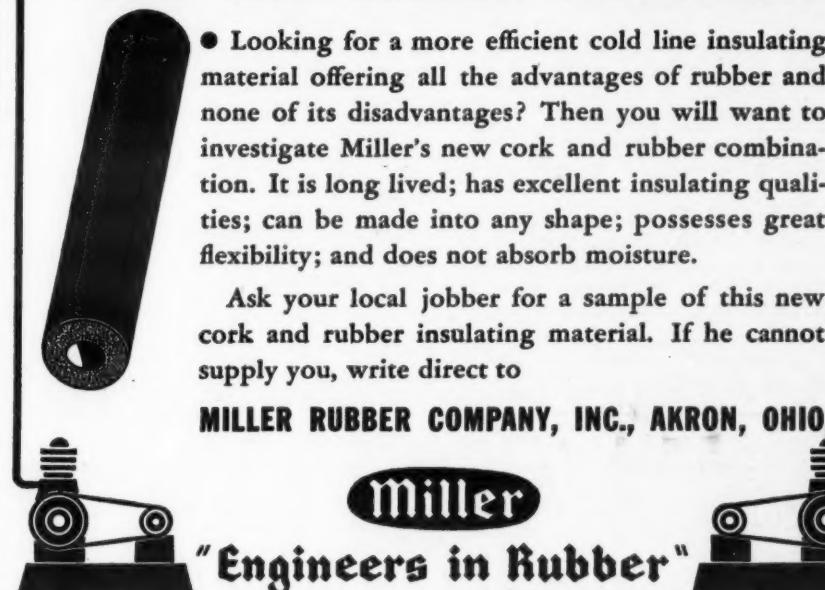
The plant also boasts an automatic defrosting arrangement. Time of defrosting is set for between midnight and 1 a.m. The quick-freeze room, however, is manually defrosted.

Try this New, More Efficient CORK AND RUBBER INSULATION

• Looking for a more efficient cold line insulating material offering all the advantages of rubber and none of its disadvantages? Then you will want to investigate Miller's new cork and rubber combination. It is long lived; has excellent insulating qualities; can be made into any shape; possesses great flexibility; and does not absorb moisture.

Ask your local jobber for a sample of this new cork and rubber insulating material. If he cannot supply you, write direct to

MILLER RUBBER COMPANY, INC., AKRON, OHIO



Improve Refrigeration Service
...Cut Operating Costs

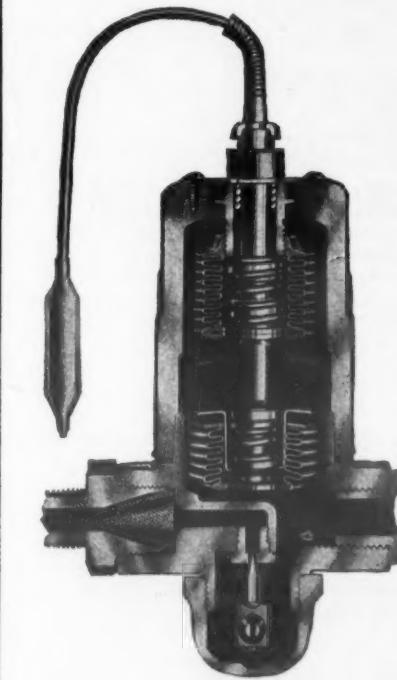
with Genuine FRIGIDAIRE THERMOSTATIC EXPANSION VALVES

To Properly Balance and Control Refrigeration Equipment

• You'll find Genuine Frigidaire Thermostatic Expansion Valves meet every requirement for the efficient, economical operation of your refrigeration equipment. They are designed to meter an adequate supply of the refrigerant to the evaporator regardless of the load—giving you proper balance and control of your refrigerating equipment constantly!

The Genuine Frigidaire Thermostatic Expansion Valve is compactly constructed. Top quality—made of non-corrosive metals and sealed against infiltration of air and moisture—with a frictionless self-aligning, self-cleaning needle. Available in capacities from $\frac{1}{2}$ to 25 tons. May be used for Freon 12, Sulphur Dioxide, and Methyl Chloride.

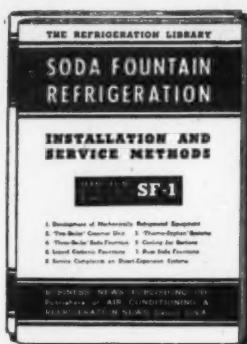
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EASILY ADJUSTED...

1. TO CONTROL CAPACITY so that all of the active surfaces of the evaporator are in use at ALL TIMES!
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TO SATISFY YOUR EVERY REFRIGERATION SERVICE NEED



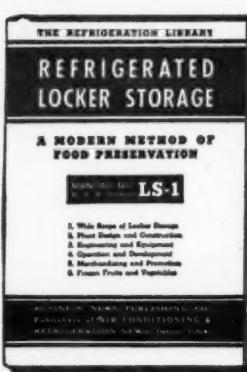
SODA FOUNTAIN REFRIGERATION

By Arch Black and Dean C. Seitz

A set of two new manuals that every service man will want. Installation and service instructions on mechanically refrigerated soda fountains.

Manual SF-1 Contents: Chapter 1—Development of Mechanically Refrigerated Equipment. Chapter 2—"Two-Boiler" Creamer Unit. Chapter 3—"Thermo-Syphon" System. Chapter 4—"Three-Boiler" Soda Fountain. Chapter 5—Cooling System for Jar Enclosures. Chapter 6—Liquid Carbonic Fountains. Chapter 7—Russ Soda Fountain System. Chapter 8—Analysis of Service Complaints on Direct Expansion Fountains. 104 pages. Price \$1.00.

Manual SF-2 Contents: Chapter 9—Bastian-Blessing Fountain with Frigidaire Water Cooler. Chapter 10—Service Complaints and Remedies on Instantaneous Coolers. Chapter 11—Brunswick Fountain with Temp-Rite Instantaneous Cooler. Chapter 12—Accessory Fixtures Multiplexed to Soda Fountains. Chapter 13—Condensing Unit Sizes—Basic Calculation Principles. Chapter 14—Carbonator Construction, Operation, Service Problems. 96 pages. \$1.00.



REFRIGERATED LOCKER STORAGE

Edited by Phil B. Redeker

Locker storage plant construction, engineering, and merchandising methods being used by experienced operators in storing meats, fruits, and vegetables.

Chapter 1—Wide Scope of Locker Storage. Facilities for locker plant success. Frosted foods.

Chapter 2—Plant Design and Construction. Diagrams of plant layouts, cost figures, and building specifications.

Chapter 3—Engineering and Equipment. Heat load calculations for chill, freezer, and locker rooms. Condensing units, compressors, and refrigeration requirements.

Chapter 4—Operation and Development. Operators' methods of plant

management. Processing charges. Income and operating costs. Butchering.

Chapter 5—Merchandising and Promotion. Market prospects and sales methods. Rules for guidance of patrons.

Chapter 6—Frozen Fruits and Vegetables. Tables on packing fruits and vegetables. Quick-freezing methods.

This book, Manual No. LS-1, contains 112 pages. Price \$1.00.



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A book of sales ideas, promotion plans, and management methods for the electrical appliance dealer, based upon successful experience.

For electrical appliance distributors, dealers, and salesmen. A book of sales ideas, promotion plans, and management methods taken from actual experience of dealers who have successfully applied the methods described.

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3-20-40

Grand Rapids Servicemen Form RSES Chapter; Start 'Sales' Drive

GRAND RAPIDS, Mich.—Promotion of the refrigeration service business by building up the individual organization as a factor in the business life of the community is the initial objective of the Furniture City Chapter of the Refrigeration Service Engineers Society which was organized here early this year.

Awake to the value of publicity and advertising, the chapter recently released a full page of information and cooperative advertising in the Grand Rapids Herald. An announcement story concerning the organization of the chapter was supplemented by advertisements of 12 local refrigeration concerns.

Officers of the chapter are William F. Wilbur, president; Louis G. Post, vice president; Lowell J. Scott, secretary; Kenneth L. Henry, treasurer; Cecil A. Simpson, Vor L. Udell, and John A. Weidenfeld, board of directors, and Thomas J. Cummings, chairman of the education and examining board.

The Furniture City chapter of the society now has 31 members, including Fred C. Goodwin, Harry Scott, Levi Finch, Milton Thiebaut, C. J. Maloney, Fred H. Mendricks, Ray R. Falicki, Martin Bontekoe, Charles Conrad, Don Lamphere, Earl D. Leitch, Al E. Dumonte, Claude Jackson, Roland Copp, Adrian Hoek, Martin Kirkhof, Herb C. Palmer, Russel W. Paris, Davis R. Quirk, Ray P. Wooden, Russell Schook, and W. J. McCarthy.

Lester Pool of B. F. Harris & Son, refrigeration supply jobber, was inducted as an associate member of the organization at a recent meeting.

At this meeting C. M. Spielman gave a talk describing the manufacture of Ranco controls, illustrated by colored slides of the Ranco factory at Columbus, Ohio. Mr. Spielman also showed slides of line drawings to explain the operation of Ranco controls used in refrigeration systems.

To make money for the organization the Grand Rapids chapter is planning a dance here on May 10 and has also arranged to cooperate with a merchants certificate plan to help swell the treasury.

Organizations placing advertising in connection with the local newspaper announcement were Young & Chaffee's Furniture Co., Van's Radio Sales & Service, Consumers Power Co., Jelsema Hardware, Insley Electric Co., Bontekoe Refrigeration Service, L. H. Udell & Sons, B. F. Harris & Son, Fred Hoop, Dumonte Refrigeration, Riverview Furniture Store, and the West Michigan Refrigeration Co.

New Parts Jobbing Firm In Lynchburg, Va.

LYNCHBURG, Va.—George A. Holder & Co., Inc. has purchased the refrigeration service department, equipment, and stock of parts and supplies from McDaniel-Rice Electric Co., and is now operating from a new location at 504 Monroe St.

From 1/4 to 25 TONS of refrigeration

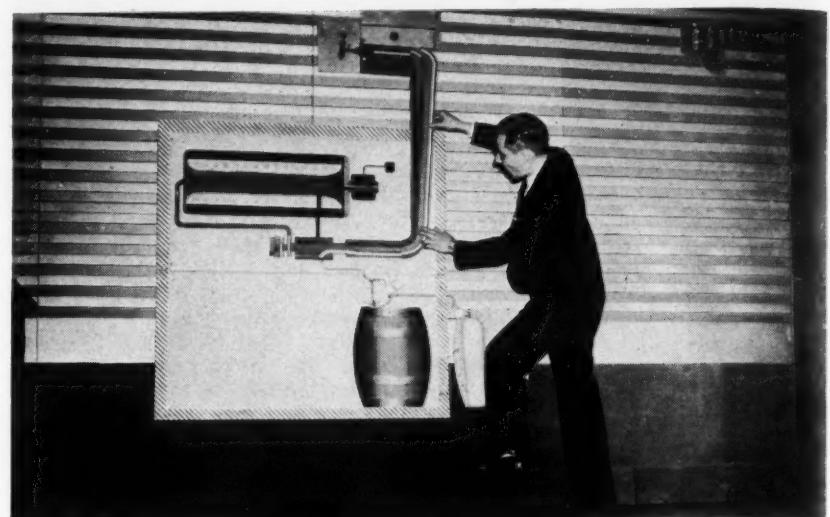
Brunner Refrigerating and Air Conditioning equipment comprises air and water cooled condensing units for practically all types of commercial applications up to and including 25 tons of refrigeration... Catalog promptly on request.

Brunner Manufacturing Co., Utica, N. Y., U. S. A.



FOR YEARS THE SYMBOL OF QUALITY

'... and the Beer Goes 'Round and 'Round



Dean Seitz, assistant sales manager of York's commercial refrigeration department, demonstrates how a beer-cooling system is assembled from barrel to faucet.

Contract Service Work Demands Knowledge Of Upkeep Costs

ST. LOUIS—Accuracy in predicting long-term maintenance costs for apartment house refrigerators serviced on contract has made 85% of these contracts profitable for North Side Refrigeration Service, Inc., service firm here.

The service cost per refrigerator is based on a twin foundation of averaged national costs for refrigerators in one-year-old, two-year-old, and three-year-old periods; and the present condition of the machines as a whole in the entire building. Balancing these two factors is the biggest problem, says Lloyd Goodenough, firm manager, and the profit depends on the accuracy of cost analysis.

The firm specializes in apartment houses, ranging from those with 50 to 60 machines to those with as many as 900 refrigerators. Typical example is a new apartment which has 800 refrigerators and has contracted with North Side Refrigeration Service for the service work. The contract in this case calls for a bi-monthly inspection at a flat rate per year of \$6.50 per refrigerator.

Not all contract arrangements are profitable, Mr. Goodenough admits, but in the main a thorough preliminary examination, on which the base rate per machine is figured, will indicate whether or not it will pay to accept the contract.

In selling the service contracts, the idea of "permanent insurance" on refrigeration is emphasized to apartment house owners and real estate firms controlling large blocks of these dwellings. It is pointed out that the average owner cannot predict probable maintenance costs on apartment house refrigeration, whereas the service contract settles this problem once and for all.

A certain amount of gamble still exists in binding contracts where the refrigeration equipment requires frequent inspection, Mr. Goodenough says, but through specialization in this field and working through bona fide real estate firms, contract service has become a profitable 10% of this firm's annual business.

O'Toole To Sell Deissler Units In New Jersey

NEWARK, N. J.—F. J. O'Toole Associates, Inc., air conditioning and refrigeration engineers at 143 Broadway, Newark, has been appointed distributor in northern New Jersey for Deissler Machine Co.'s "Diceler" line of refrigeration products. F. J. O'Toole heads the firm, and L. F. Alexander is sales manager.

Trained EXPERTS FOR HIRE IN AIR CONDITIONING

Select your man-power with the same care you exercise when buying equipment. Men graduated from America's largest refrigeration and air conditioning training schools really know their business. They have been thoroughly grounded in both theory and practice by experts with years of experience in the field. Every type of trained man available—heating, cooling, air conditioning, for installation and service work, or application and sales

engineering. Many have had years of experience before taking training. Write and tell me the kind of man you want. I will send you the names of several especially selected to meet your individual needs, with a frank statement as to their ability. Let me help you as I have helped other employers. No charge to anyone for placement service. Address George L. Candler, Personnel Director,

INDUSTRIAL TRAINING INSTITUTE

1130-1135 Lawrence Avenue, Chicago, Illinois

30 Firms To Exhibit At Toronto Show

TORONTO, Ontario, Canada—Some 30 exhibitors have taken all available exhibit space at the Refrigeration and Air Conditioning Exhibition to be held April 1 and 2 in the King Edward hotel here under the sponsorship of the Ontario Maple Leaf chapter of Refrigeration Service Engineers Society. The affair is said to be the first of its kind to be held in Canada.

A program of educational talks has been arranged, and a tube bending contest, open to all service men attending, is being planned. There will also be a banquet with a floor show and dancing on the night of April 2.

A registration fee (\$3 for men, \$2 for women) covers everything on the two-day program. Special room rates have been arranged for persons who may wish to stay in the hotel during the convention.

Acme Cooler Named York Grand Rapids Outlet

GRAND RAPIDS, Mich.—York commercial refrigeration and air conditioning equipment will be distributed in this area by the Acme Cooler Co., according to a recent announcement by H. W. Summers, general manager of the concern.

W. H. Chase and Lute H. Rathbun, who were both associated with Mr. Summers in the commercial refrigeration department of the Consumers Power Co., are both active in the Acme Cooler Co.

The company manufactures a line of reach-in refrigerators and refrigerated bars which are marketed in connection with York commercial and air conditioning equipment.

Sunbeam Adds 3 Gas-Fired Conditioners To Line

NEW YORK CITY—Three new series of gas-fired air conditioning furnaces have been added to the Sunbeam line, designed especially for use in small homes.

Series HL has a cast-iron heating element, and blower and filter compartment is an integral part of the heating compartment, and is the same size. It is available in four sizes with capacities ranging from 80,000 to 150,000 B.t.u. per hour.

Series SL has a steel heating element, and is housed in a baked enamel cabinet with removable panels. It is available in five sizes.

Series SU is a compact unit, designed for homes without basement or where basement space is limited.

The Eng...
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First of French-English Service Manuals Now Ready For Distribution

Manual No. F-1, Theory and Principles of Mechanical Refrigeration, the first of six manuals comprising a French-English edition of the Master Service Manuals on the installation and servicing of commercial refrigeration equipment. Complete English and French texts on opposite pages. Mathematical data, including refrigerant tables, in English and metric units. English text by K. M. Newcum. French translation by Maurice E. Anderson of Dartford, Kent, England. Various refrigerant tables furnished and proofs edited by International Institute of Refrigeration, Paris, France. Published by Business News Publishing Co., 5229 Cass Ave., Detroit, Mich. 96 pages. Price \$1.00.



The publication of the French-English edition of the Master Service Manuals was undertaken to meet the need which has arisen as a result of the large-scale production of refrigerating machines, parts, and accessories by many U. S. firms.

American refrigerating machines are now being sold throughout the world. The component parts and materials which have been perfected and produced so economically during recent years are especially popular. As a result there has been a demand for concise instructions, applicable to all makes and types of equipment in other languages, particularly French and Spanish.

Translation into the French was decided upon first, because this language is replete with technical terms and has world-wide use, because it is the "second language" best known to engineers in several countries, and because basic refrigerating data is available in French technical literature.

SPANISH EDITION PLANNED

A Spanish-English edition is scheduled later. It will be more difficult because of a lack of established refrigeration terminology in that language. However, a "dictionary" is being compiled, a translation of American refrigeration terms and expressions, as a basis for the Spanish edition and which may, in time, become standard usage in the Spanish language.

The new French-English edition comprises the English text of K. M. Newcum's Master Service Manuals Nos. C-1, C-2, and most of C-3 with the French translation. Many thousands of copies of the English manuals are now being used by refrigeration service men.

PIETTRE COMMENDS WORK

Reproduced in Manual No. F-1 is a letter from Dr. Maurice Piettre, director of the International Institute, which says, in part:

"The International Institute of Refrigeration has always with great interest followed the efforts made by national organizations in the different countries in the direction of giving wide publicity to everything concerning the science and technique of Refrigeration. In this order of ideas, private organizations have taken happy initiatives and, among these organizations, the 'Business News Publishing Co.' deserves particular attention for the remarkable efforts made toward the dissemination of the technique of refrigeration."

"An excellent summing up of the question is represented by the number and quality of the manuals aiming at finishing off the training of specialists by placing at their disposal sound data and information in every field of refrigeration on the theoretical principles, and giving multiple references to all practical problems, work which the International Institute of Refrigeration appreciates highly."

Manual No. F-1 presents the fundamental theory and principles of refrigeration. Forming the groundwork for later manuals, these introductory chapters are written in simple terms understandable by even the non-technical man.

Chapter 1, Theory of Refrigeration, explains the following: Definitions of basic terms. Heat and cold and

their application to commercial refrigeration. Methods of removing heat, the Kinetic theory of heat and the flow of heat. Conduction, convection and radiation, methods of heat transfer. Sensible and specific heat. Units of quantity and intensity of heat. Fahrenheit and Centigrade thermometers and temperature conversion formula and table. Latent heat. Changes in solid, liquid, and gaseous states of matter. Evaporation and condensation. Heating and refrigeration cycles. Boiling points of refrigerants. First principle of refrigeration.

Chapter 2, Principles of Commercial Refrigeration, explains the following: Three principal units of commercial refrigeration system, refrigerator, evaporator and condensing unit, and their functions and operations. High and low pressure sides of refrigeration system. Temperature-pressure relations, with table giving vacuum and gauge pressure data, in English and metric units, for several refrigerants at various temperatures. Measurement of pressure. Service man's gauge. The manual contains 22 illustrations with English and French designations. Tables and mathematical data are given in English and metric units. The index is in both languages.

FUTURE MANUALS

Manual No. F-2, Refrigerants: Properties and Methods of Handling, will contain detailed tables, in English and metric units, on the properties of various refrigerants and a table of conversion factors for weights and measures units. Sulphur dioxide, methyl chloride, and "Freon-12" are dealt with in the text and properties of other refrigerants are given in a sizeable appendix. Other chapters take up refrigerant cylinders, valves, and safety devices; transferring refrigerants to smaller drums; and refrigerant dryers.

Contents of Manuals F-3 to F-6 will deal with condensing units, water regulating valves, flooded evaporators and float valves, two-temperature flooded systems, expansion evaporators, thermostatic expansion valves, pressures and temperatures, and refrigerant control valves. Each manual will contain many illustrations with French and English explanations.

Price of each manual, \$1.00 per copy. There is a minimum extra charge for shipment outside of the U. S. A. amounting to 50 cents for each package. Up to six books may be included in one package.

CLASSIFIED ADVERTISING

RATES: Fifty words or less in 6-point light-face type only, one insertion, \$2.00, additional words, four cents each. Three consecutive insertions \$5.00, additional words ten cents each.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Air Conditioning & Refrigeration News, 5229 Cass Ave., Detroit, Mich.

POSITIONS WANTED

SALES MANAGER—Commercial refrigeration and air conditioning—twelve years experience, qualified engineer, capable organizer, outstanding ability, 33 years of age, university and factory trained. Thorough knowledge of Sales, Engineering, and Service. Desires connection with reputable manufacturer or distributor. Prefer location in West or Southwest, but will consider position elsewhere. Write Box No. 1218, Air Conditioning & Refrigeration News.

WOULD LIKE to contact some company who is in need of a first class service and installation engineer. I am thirty-eight years of age, a high and technical school graduate and have had fourteen years experience covering domestic and commercial refrigeration. Am available at once and will go anywhere. Box No. 1220, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

WANTED—Engineer to do layout, laboratory and test work on expansion and back-pressure valves, filters, etc. Company not now manufacturer of these items. Good living conditions. Future of your making. Replies treated confidentially, give experience. Box No. 1213, Air Conditioning & Refrigeration News.

MANAGER WANTED for refrigeration jobbing supply warehouse. Experience necessary. Address Box No. 1221, Air Conditioning & Refrigeration News, 5229 Cass Ave., Detroit, Mich.

SALESMEN WANTED

COMMERCIAL REFRIGERATOR and display case salesman of proven ability. Able to close sales personally, and capable of organizing and managing sales force. Several desirable openings in various sections of the country. Must be able to furnish bond. Salary or drawing account to qualified applicants. Write Box 1216, Air Conditioning & Refrigeration News, listing experience and qualifications.

AGENTS WANTED

MANUFACTURER of beer and water cooling equipment wants to secure the services of agents to contact jobbers and dealers. Please give full particulars. Box No. 1211, Air Conditioning & Refrigeration News.

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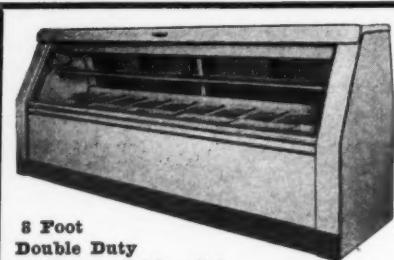
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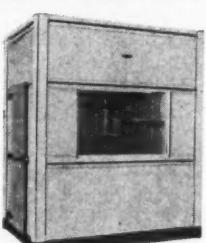


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Chieftain Chapter 7

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Are Air Conditioning Design Standards Out of Date? Here Are the Changes One Engineer Suggests

SAN ANTONIO, Tex.—Present methods of controlling body heat loss by warming or cooling great masses of air and building materials are inefficient, in the opinion of A. J. Rummel, air conditioning engineer of the San Antonio Public Service Co. In a study of the relation of air movement and radiation to human comfort, Mr. Rummel found that some accepted air conditioning engineering standards may be in need of revision.

Mr. Rummel's studies also show that allowances must be made in so-called optimum conditions for the age and physical condition of the occupants of the air conditioned area.

Because people dissipate a considerable part of their body heat by radiation, Mr. Rummel believes that it would be possible to reduce air temperature differentials, between indoors and outdoors, if a more efficient means of dissipating heat was found.

To illustrate this point, Mr. Rummel cited laboratory experiments in which cold plates were maintained in the walls of the room at temperatures of 32° F. to 40° F., in a manner which produced comfort when air temperatures were as high as 92° F., with relative humidities up to 70%.

On the subject of air movement, Mr. Rummel has found from observations of 150 office workers over a two-year period, that while some air movement is necessary to prevent staleness, "the main factor to be guarded against is a change in velocity, as this is what causes the change in the feeling of comfort."

To eliminate difficulties which occur when air movement is changed to meet changing temperature requirements in a given space, Mr. Rummel recommends that air conditioning systems employ "a practically constant air movement at all times."

Control of this type of system is by means of a "split" system regulated by a motor-operated double damper, actuated by a thermostat. One supply furnishes outside and recirculated air while the other supplies conditioned air. As the temperature condition within the space is satisfied, the damper within the duct supplying the conditioned air closes, while the damper in the outside and recirculated air duct opens, thereby maintaining the same quantity of air supplied to the conditioned space, but at a higher discharge temperature.

LOAD COMPUTATIONS WRONG

"Considering the standards accepted today, we also find that the methods used in computing our loads are of such a nebulous nature that it is almost impossible to arrive at any standardized factor, and the factors used in the layout of any installation are left more or less up to the best judgment of the engineer," Mr. Rummel continued.

"Due to the increasing tendency toward windowless buildings, the heat loss or gain through walls is becoming a greater part of the total load than was formerly the case, and more attention is being given to the thermal capacity of the wall structure in addition to the thermal conductivity.

"Much work is also being done in investigating the effect of solar radiation. The solar radiation data available at the present time cannot be used accurately due to lack of widespread data on the intensity of the sun's rays, the effect of water vapor and dust particles in the atmosphere, and the angle between the sun's rays and the surface it strikes.

FRESH AIR REQUIREMENTS

"Much has been said about the matter of fresh air needed for ventilation purposes, and in many localities ordinances have been passed requiring minimum amounts of fresh air to be introduced into an air-conditioned space. Late investigations indicate that the amount of outside fresh air previously considered necessary for healthful conditions has been greatly exaggerated, and that the amount of fresh air actually needed in most cases is dependent almost entirely upon the odor intensity within the structure.

"In general, and except in crowded public meeting places, the natural infiltration through doors, windows, and walls is sufficient to replenish the oxygen content of the air. On

tests made allowing 200 cu. ft. of space per adult, it was found that with simple ventilation 16 cu. ft. per minute of outside air per person was required to produce pleasant conditions. This was reduced to 12 cu. ft. per minute per person when a surface type cooler was used, and to less than 4 cu. ft. per minute per person when the air was circulated through a spray dehumidifier and cooler, using fresh water for the test.

"Further tests showed that after the water had been in the tank of the spray dehumidifier for eight days, 12.7 cu. ft. per minute of fresh air was necessary per person, and even then the odor intensity was higher than it was with less than 4 cu. ft. per minute per person, and clean water in the tank.

DESIGN CONDITIONS IMPORTANT

"It is almost impossible to designate any certain set of temperatures and humidities for comfort unless a very careful and thorough analysis is made of all conditions which might affect the comfort of the individual to be made comfortable. For instance, in investigations carried on in Texas during the summer of 1938, it was found that the same percentage of people (92%) entering an air conditioned building from the outside were comfortable when the building was maintained at 72° effective temperature as were those entering buildings maintaining 76° effective temperature;

whereas for those people who remained inside these buildings, it was found that in the higher effective temperature of 76° only 25% were comfortable after having been in the building an hour or longer, as compared to no change in the percentage when the effective temperature was 72°.

CAUSE OF SHOCK

"In planning a commercial installation, many factors must be considered before specifying the conditions to be maintained indoors. Is the installation being made for the comfort of the employees or for the transients; the average length of stay; mostly men or women; activity; etc. One of the most important factors to be considered is the shock reactions of the people entering the conditioned space. The importance of considering the shock, especially from the standpoint of the transient public, is quite evident when it is considered that most people who enter an air-conditioned building have been more or less active prior to entering, and, in most cases, their bodies are wet due to perspiration.

"The person outdoors in 95° dry bulb temperature dissipates almost 85% of his total body heat as latent heat, and only 15% as sensible heat. In going from outdoors into a conditioned space which is maintained at 78°, the sensible heat loss increases from 15% to 70%; but since the body is wet, the latent heat loss is not reduced immediately, with the result that the total heat loss from the body is increased about 50% above the normal loss, which naturally gives a cold shock. On leaving a conditioned building, a hot feeling is experienced, due to lag in the perspiration starting, thereby not allowing the body to lose its heat until equilibrium has been reached. The duration of the cold shock upon entering a conditioned building has been found to be approximately 10 or 15 minutes for effective temperatures of 71.5° or higher; whereas the length of the cold shock is greatly extended when the temperature is below this figure.

FACTORS TO CONSIDER

"The following factors which are the result of investigations that have been made to establish indoor atmospheric design standards for comfort cooling should be given consideration in the design and operation of any air conditioning system in the southwest:

"(1) The optimum effective temperature for persons who remain in a conditioned space for a period of one hour or longer seems to be about 73° effective temperature (45 to 60% relative humidity) for all age groups and for both sexes.

"(2) For all persons over 40 years of age, both men and women, the optimum effective temperature is

approximately $\frac{1}{2}$ ° higher than those under 40 years of age.

"(3) The optimum effective temperature for women of all age groups is about 2° higher than that for men of all age groups.

"(4) Wearing a coat makes one comfortable at from 1 to 2° lower effective temperature.

"(5) Very little shock is noticeable upon people entering a building with an effective temperature of 71.5° or higher.

"(6) The indoor optimum effective temperature does not seem to vary with the normal outside variation in temperatures during the summer months.

"In year-around tests conducted it was found that the indoor optimum effective temperature varied only about 5°, although the outdoor dry bulb temperature varied as much as 60° F. from time to time.

"(7) People whose health might be classed as not perfect desire a temperature about 1° higher than those in perfect health.

"(8) People are more tolerant of a slight feeling of warmth than of a feeling of being too cool.

"(9) Tests conducted with college students at Texas A. & M. College indicate that the optimum indoor condition during the winter is about 67° effective, or 1° higher than the 'comfort chart' as adopted by American Society of Heating & Ventilating Engineers.

"Although no detailed tests have been made, it is indicated from the reactions of employees of all ages and sex doing routine office work that an indoor effective temperature of between 69 and 70° effective is most desirable."

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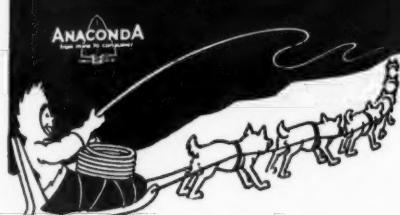
PHILADELPHIA — Complete new line of reach-in refrigerators, with capacities ranging from 20 to 70 cubic feet for either remote or self-contained installation of condensing units, has been announced by Fogel Refrigerator Co.

The refrigerators are also furnished with self-contained compressors installed at the factory, so that the refrigerator may be connected to the electrical circuit immediately on delivery. Steel, grid-type shelves have been arranged to give larger storage area, it is said.

Exteriors and interiors are of porcelain, and insulation is of one-piece construction. Hardware is of forged brass, plated with chromium.

Air circulation is provided by Fogel "Kool Breeze" circulator, which is said to give constant circulation of air, constant temperature, higher humidity, and purified air.

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One-Call Belt Replacement



(Above) The V-belt service kit now being introduced by Dayton Rubber Mfg. Co. is designed to fit easily into the rear end of the serviceman's car.

(Below) Open on the job, the service kit includes an assortment of 43 fractional horsepower V-belts, together with a belt replacement catalog and the matchometer for measuring worn out belts and identifying the correct replacement belt.

Dayton V-Belt Replacement Kit Gives Servicemen A Portable 'Stockroom' To Take On Calls

DAYTON, Ohio—Compact and designed to fit easily into the back or luggage compartment of any car is the new portable V-belt service kit for use by refrigeration and appliance service men on job belt replacements introduced by Dayton Rubber Mfg. Co.

Ideal of the kit is to make it possible for the serviceman always to be ready to make belt replacements, and to eliminate time-wasting and customer-annoying callbacks on jobs where the serviceman discovers the belt is shot.

The kit itself is an easy-to-handle, durable, reinforced Swedish fiber case. Inside it, visible at a glance, is an assortment of 43 belts which covers 80% of the V-belt replacements needed on leading makes of household refrigerators.

Included also is a ready reference V-belt replacement catalog and a handy V-belt "matchometer" for measuring worn out belts and identifying the correct replacement belt needed.

The telescoping service kit can be expanded to hold additional belts if desired. While the original assortment was designed to fit as best as possible the needs of general servicemen, the kit can be repacked by a refrigeration parts jobber to include a different assortment for servicemen who specialize on one leading make of refrigerator, for example.

During the period that it is introducing this kit, the Dayton Rubber

'Special' \$39.95 Cleaner To Feature G-E Drive

BRIDGEPORT, Conn.—A new General Electric vacuum cleaner priced at \$39.95 will spearhead the company's national sales promotion drive. Designed to create buying desire through presenting "best buys," the drive will also feature a lower-priced cleaner at \$29.95, and a deluxe model at \$49.95.

A newspaper, magazine, and direct mail advertising campaign will be launched to back up the national drive.

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DISPLAY CASES

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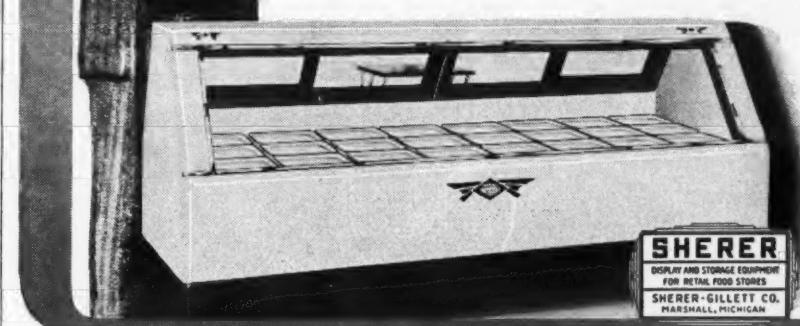
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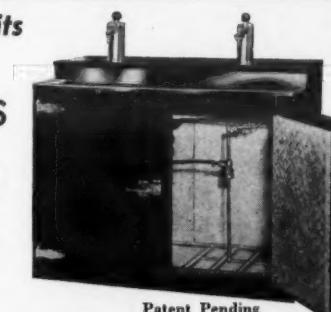
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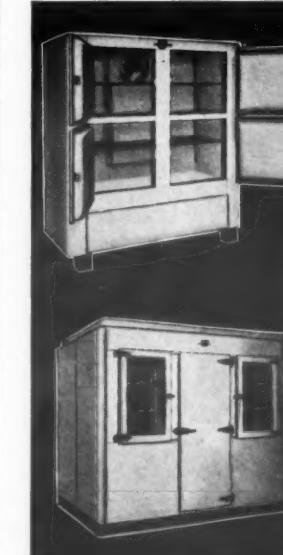
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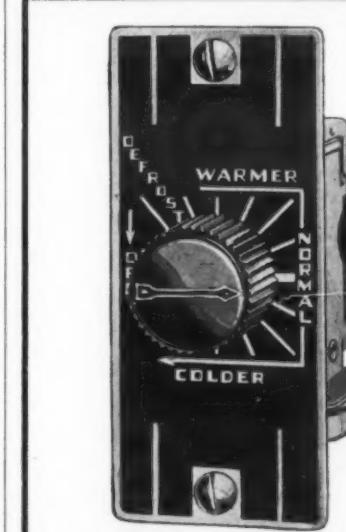
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RANCO Inc., Columbus, Ohio, U.S.A.



Refrigeration For Navy Craft Presents Many Odd Problems

(Concluded from Page 1, Column 2) has had considerable experience in repair, maintenance, and operating activities, especially on submarines and heavy cruisers, handled the major part of the technical discussion.

After pointing out that refrigeration installations in naval shore bases created no problems other than those ordinarily arising in connection with such commercial installations, he went on to state that three factors—weight, space, and safety—are of paramount importance in the consideration of refrigeration equipment for naval vessels.

HOW SHIPS ARE EQUIPPED

To give some idea of the amount of refrigeration equipment used on naval vessels, and the purposes for which it is used, Lt. Commander McQuestin offered this information:

"Aircraft carriers have three 6-ton units, battleships have three 3-ton units, cruisers have two 3-ton units, destroyers have two 1-ton units, and submarines have one $\frac{1}{2}$ -ton unit.

"Primary purpose of any of this refrigeration equipment is for food preservation and habitability. Occasionally cooling is used for other, more specialized purposes, such as cooling ammunition magazines and sick bays. In addition to the big systems which refrigerate the ship's storerooms (a battleship often carries a 30-day supply of provisions for its crew of 1,200 men) there are smaller installations which provide the refrigeration for the ship's soda fountain and similar service facilities. Each officer's mess has its own refrigerator, as does every captain, but these are regular commercial cases of the type that might be found in any restaurant.

SUPPLY SHIPS BIG USERS

"Greatest use of naval refrigeration, of course, is on supply ships such as the Arctic. This ship has 168,000 cu. ft. of refrigerated storage space. These cargo carriers are the 'lifeline' of the Navy while at sea, sometimes carrying as much as a 30-day supply of beef, for instance, for the whole fleet.

"Transfer of provisions from the cargo carriers to the combat ships is made during early morning hours, when the air is coolest. Time involved in this operation is not over one hour, so the food is not kept out of refrigerated quarters long enough to suffer any deterioration."

REFRIGERANT DATA

Getting down to the more technical phases of the matter, the naval officer explained that ammonia systems cannot be used aboard ship because of the danger of escaping fumes. Because of the importance of this same safety factor, "Freon-12" has been almost universally used for ship systems ever since its development, he stated. Prior to this time, most naval vessel systems used CO₂, SO₂, methyl chloride, or one of the older types of dense air machines.

"Two types of CO₂ systems—direct expansion and brine—were used," Lt. Commander McQuestin continued, "depending upon the size of the installation. On the smaller systems, direct expansion was employed, but brine cooling was used on all the larger systems.

"Reason for this reverts primarily back to the same old factor

of safety, for with the brine system, only damage to the machine itself would result in gas leakage. Damage, whether by shells or mechanical weakness, to any of the refrigerant lines would result only in loss of brine, which is far less dangerous than escaping refrigerant gas. Use of brine in these larger systems is especially important inasmuch as the constant motion of the ship creates a strain on the refrigerant lines that not infrequently results in leaks.

"Condensing water, which in all cases is straight sea water, also causes its share of headaches. Bane of the naval man's existence is the trouble caused by the circulation of sea water through the ship for various purposes. Not only does the high salt content cause corrosion, but dirt and foreign matter collect rapidly and require frequent cleaning of any mechanism with which the sea water comes in contact.

CONDENSING WATER

"Another angle on this matter of condensing water is that in the tropics the water, at least at the surface, becomes too warm for satisfactory use, the temperature often rising as high as 85° F. This problem is solved by running lines down to the bottom of the ship, so that water is drawn from a depth of about 30 feet, where temperature usually is somewhere between 70 and 75° F.

"Still another headache is occasioned by the placement of refrigerating machinery. So many other things on a modern naval vessel are of more importance than the refrigeration system that primary consideration is given to them, and the refrigeration equipment is stuck in any space that may happen to be left over. For this reason the service and maintenance problem is extremely difficult, for the machinery is in many cases so nearly inaccessible.

"On practically all combat ships, parallel installations are used so as to minimize the danger of complete shutdown of refrigeration. In other words, on a heavy cruiser which has

two 3-ton machines, one of these machines can and does handle the entire load. The other is used as an auxiliary. In actual operating practice, however, the machines are usually run on alternating weeks, thus offering time for cleaning or repair during the off weeks.

SUBMARINES USE 'REVERSE'

"Submarines," Lt. Commander McQuestin informed his listeners, "constitute an entirely different problem. Subs are just like thermos bottles. In tropic waters cooling is needed, while in the colder waters adequate heating is a requisite. To satisfy this double-duty job, reverse refrigeration is used. Air is purified by passing it over trays of sodium compound to remove the CO₂ content."

Following Lt. Commander McQuestin's talk, a sound movie was shown which illustrated the activities and functions of the Navy's supply and repair department.

The meeting was concluded with an open forum session during which the two naval officers answered the questions of the attending engineers.

Northern California Group Makes Plans On Refrigerators

SAN FRANCISCO—Announcement of plans for its annual refrigerator campaign from April 8 to May 4 and election of officers for the current year highlighted the annual meeting of the Electric Appliance Society of northern California held recently at the society's headquarters in the Western Merchandise Mart here.

Louis J. Breuner of John Breuner Co., Oakland, was unanimously re-elected president of the organization. Other officers who were re-elected were: H. A. Saxe, Jr., Sterling Furniture Co., vice president; R. E. Fisher, Pacific Gas & Electric Co., secretary; S. W. Newman, Chas. Brown & Sons, treasurer; B. W. Reynolds, Pacific Gas & Electric Co., promotional director.

Re-elected directors include:

J. A. Werner, Dohrmann Commercial Co.; E. C. Lipman, The Emporium; Edward Lachman, Lach-

Smart Looking



The new Peerless store cooler, in its fancy dress, comes complete except for the condensing unit.

man Bros.; Marshal Hale, Jr., Hale Bros.; E. C. Elliott, Jackson Furniture Co.; Philip Harris, Redlick-Newman Co.; Carlton Bryan, Maxwell Hardware Co.; T. W. Sullivan, Capwell, Sullivan & Furth; L. W. Hink, J. F. Hink & Son; E. D. Holting, Apex Rotarex Mfg. Co.; R. E. Robertson, Frigidaire Corp.; A. H. Meyer, Leo J. Meyberg Co.; F. S. Fenton, Jr., Easy Washing Machine Co.; J. P. Carson, Graybar Electric Co.; D. E. Harris, General Electric Supply Co.; R. J. Holterman, Westinghouse Electric Supply Co.; LeRoy Smith, California Retail Hardware Association; George W. Fitch, Retail Furniture Association of California; Frank K. Runyan, Western Merchandise Mart; and Arthur E. Rowe, Pacific Radio Institute.

Scarlett O'Hara Works For Carolina Dealer

RALEIGH, N. C.—How would you like to have Scarlett O'Hara selling refrigerators for you? Well, that is in effect the deal which C. H. Stephenson, Jr. of Stephenson Music Co., local Frigidaire dealer, made when he arranged to have a box-office for "Gone With the Wind" tickets set up in the rear of his store.

To prepare properly for the parade of floor traffic which he knew this move would bring, he set about to renovate his store. By dint of much feverish activity both day and night he managed to accomplish this in one week, finishing up the night before the ticket sale was to begin.

At nine o'clock the following morning, people were lined up for a block outside the store, waiting to buy their tickets, and, incidentally, to see the elaborate appliance display which Mr. Stephenson had so carefully prepared.

This display was arranged in the form of an aisle leading to the ticket window at the extreme rear of the store, so people had ample opportunity to examine the appliances in which they were interested as they waited their turn at the boxoffice.



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